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1 January, 1916.

LEAVE WITHOUT PAY.

Following is a copy of a memorandum dated December 13, 1915, over the signature of the Chief Clerk of the Department.

"Hereafter it will be necessary to state on application for leave of absence without pay, whether for one day or longer, a specific reason therefor, in accordance with the provision of paragraph 86 of the Administrative Regulations. Applications should be submitted in advance, as far as possible, in order that action may be taken by the Chief Clerk of the Department and the applicants notified before leave is taken. Officials and employees should familiarize themselves with the leave regulations."

WESTERN IRRIGATION AGRICULTURE

FIELD NOTES.

Scottsbluff.

The weather during the week ending December 18 has been rather bad. Very little outside work could be done.

Most of the hogs that have been on the experimental feeding were sold this week, leaving only the gilts and the old brood sows here.

The lambs are making good progress in the yard. The snow storm of the week will check them a little, but indications are that we will be able to ship them soon after the holidays.

San Antonio.

The maximum temperature for the week ending December 18 was 81, minimum, 32, and greatest daily range, 36.

Harrowing of the rotation plats was completed the first part of the week.

Hauling on of sorghum from the rotation plats was completed early in the week. The total yields of sorghum for the two cuttings of the season are shown in the following table:



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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued)

<u>8-inch Drills.</u>	
<u>Plat No.</u>	<u>Tons per Acre</u>
A4-11	7.19
A4-15	4.21
B4-12	9.15
B4-13	7.59
B5- 6	5.52
B5-12	7.54
B5-16	9.33

Average	7.22

<u>4.1-ft. Drills.</u>	
A4- 9	5.15
A6- 4	4.75
B5- 5	5.23
B5-10	5.36
B5-14	6.09

Average	5.31

General Average 6.43

The fifth planting of flax in the date-of-seeding test was made on the fifteenth. Plowing of the sorghum and Sudan grass plats in the rotation experiments was continued, the following plats being plowed: A4-9, 11, 15, A6-3, 18, and B4-15.

Two yearling steers and eight shoats were purchased and delivered to the farm during the week. These animals are to be used in the pasturing experiments which are being started this winter. Fences were built around the crops to be pastured, and watering, and feeding devices were constructed.

Mr. W. T. Swingle spent several days at the farm the first part of the week. Other visitors were Mr. H. A. Edson of the Department and Mr. Thackery of the Indian Service at Sacaton, Arizona.



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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

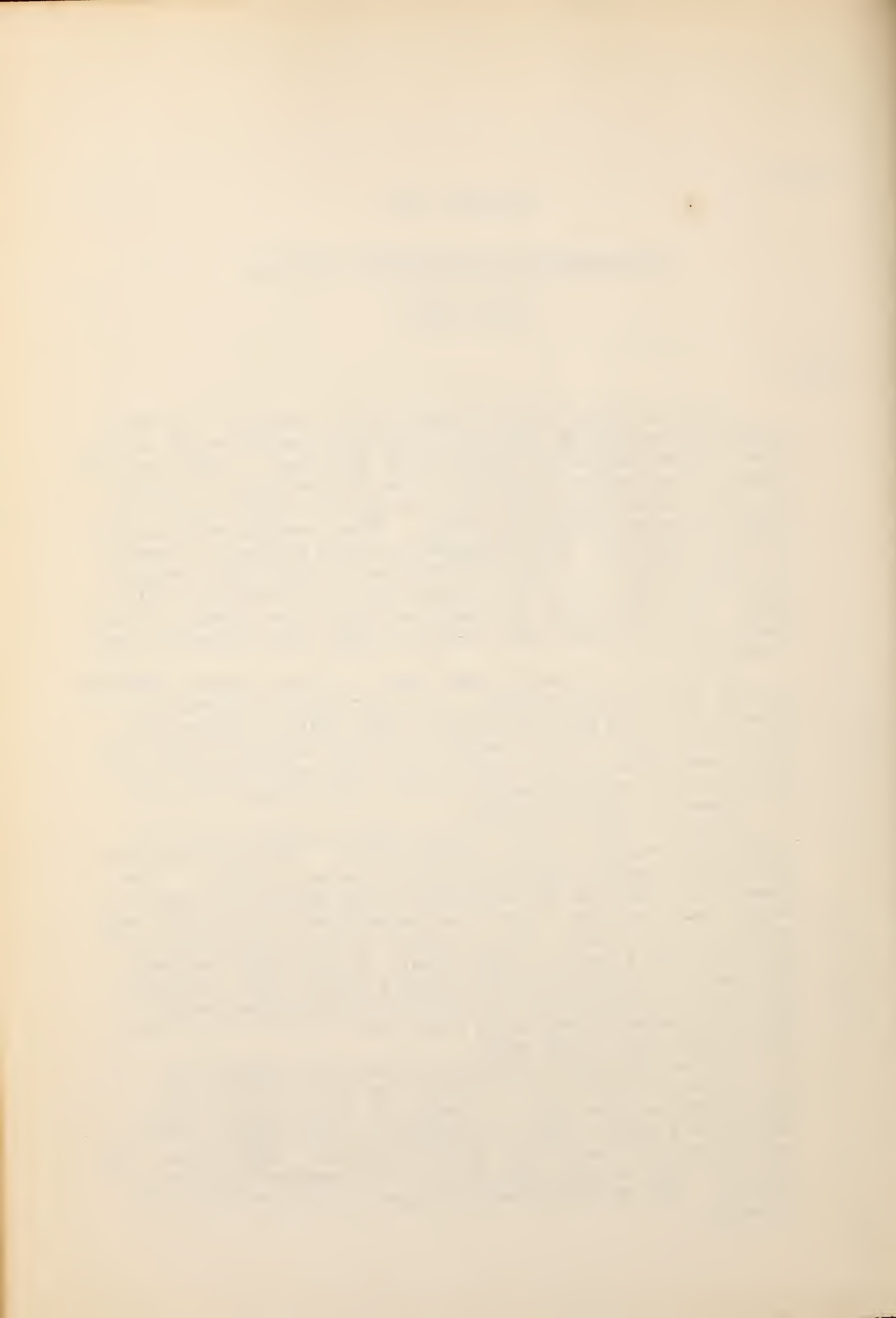
Boise.

During the week ending December 11, two herds of hogs were inspected for cholera, and one meeting was attended at the Huston school house where boys' club work was discussed. Aside from the above and some miscellaneous work, the greater part of the week was spent in arranging for local meetings to be held in country school districts during the winter. These meetings will be held in cooperation with Country Agents McCall and Williams of Canyon and Ada Counties. It has been the plan to take these meetings to districts which have not, heretofore, held meetings of this kind. For this reason it takes some little time to make arrangements for the meetings with regard to place, time and work to be taken up.

On account of Farmer's Institutes to be held during February in some of the larger centers, by the Agricultural Extension Department of the State University, these smaller meetings are being placed entirely in country districts, located at some distance from towns. This necessitates considerable travel but is believed to be practical since it will reach persons who would not attend the larger meetings.

Monday of this week was Trader's Day in Caldwell and the regular semi-monthly auction sale was held. This sale indicated the present popular sentiment toward the swine industry. Presumably on account of the unusually low hog market, 350 head of swine, from very young pigs to mature hogs, were offered for sale by 20 or more farmers. This is probably the largest number of hogs ever sold at one of these sales. Prices ranged extremely low, some of the smaller stuff sold for 65¢ per head, while the very best of feeding stuff sold for only about 3¢ per pounds. Two good purebred Poland China boars from one of the best herds in the state sold for \$5 each.

The unaccountably low market for hogs is doing much to cripple the hog industry in this part of Idaho, more than the hog cholera has ever done. Farmers are very generally discouraged and many of them are clogging out their hogs at nearly nothing, some of them to get sheep at unusually high prices. The situation will be discussed at all of the meetings which are to be held. The present exchange of hogs for sheep will be discouraged.



1 January, 1916.

Boise (continued)

Parts of two days of the week ending December 18, have been spent with committees of the state dairymen, swine growers and seed growers associations, in arranging programs for January conventions. The Dairymen's Association will meet January 11 and 12, and the Swine-Growers, January 13 and 14, at Boise. The State Pure Seed Growers' Association will meet at Caldwell, January 19, 20 and 21.

Hog cholera has appeared on the project for the first time since November 1. The new outbreak occurred this week on the farm of George Russell, near Wilder, adjoining the farm of Pierce Trunnell, whose herd was vaccinated November 1 and 2, and who has been careless in handling the case. On the same day that Mr. Russell's hogs were vaccinated, a call was received from Mr. Karns, just across the road. In Mr. Karn's herd of 100 head, one hog was sick and was killed for inspection, showing some indications of cholera. No new developments have been reported, however.

Some losses from blackleg continue and 110 head of young stock have been vaccinated through this office this week. In addition some vaccine has been distributed. George Dougherty reports the loss of a calf from blackleg about two weeks after it had been vaccinated with government vaccine. The vaccine used in this case, however, was somewhat old.

The dairy herds of Mr. Rees and Mr. Cooper of Deer Flat, were tested again on Friday. The test of Mr. Rees' herd was noticeably higher than in November, though the milk flow has decreased considerably. Mr. Cooper who reported a decrease in the milk flow of his herd after the beginning of silage feeding, reports more favorably this month as his cows are doing better.

A meeting was held at the Scism school house in Deer Flat on Thursday night with County Agents McCall and Williams. Clover seed production and the advantages of diversified farming were discussed. The latter subject was taken up especially in view of the very strong sentiment in favor of clover seed production and the possible tendency to go into that crop to the neglect of other lines of farm work. Reports which are unquestionably supported by facts, of very high yields and the very strong clover seed market have created the sentiment in favor of clover seed, and some reports have been received of the sale of livestock to permit the owners to give their attention more fully to growing clover. While the attendance at the Scism meeting was not large, only 28 being present, the interest was very good and a unanimous request was made for a similar meeting later in the winter.

The first of these is the fact that the United States is a young nation, and its history is therefore a history of growth and development. The second is the fact that the United States is a large nation, and its history is therefore a history of expansion and conquest. The third is the fact that the United States is a diverse nation, and its history is therefore a history of conflict and compromise.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte.

The first heavy snow of the season fell during the week ending December 18, when there was a total snowfall of about 6 inches.

Two colony hog houses were planned during the week. One case of what was thought to be hog cholera was reported. Three hogs were posted, but no cholera lesions were found. A later report from the herd indicates that the sick hogs in the herd are apparently well.

During the week, E. W. Brown shipped a car load of 94 181-pound fat hogs to Denver for which he received \$6.35 per cwt at Denver. The hogs gained 35 pounds from the time they left the project until they were sold. The hogs received 400 pounds of corn in Denver. The total charges in marketing the car was 38-1/2 cents per cwt.

Two car loads of fat hogs were shipped by the Farmers' Commercial Cooperative Company, at Morrill. One mixed load brought \$6.25 per cwt. the other \$6.40 per cwt, at Denver.

Butterfat is now selling for 33¢ per pound both in Mitchell and at the Farmers' Cooperative store in Morrill.

To date, according to reports received from the various railroad agents, 816 cars of sheep have been shipped into the valley for fattening purposes. This is approximately 212,160 head. This exceeds the shipments last year by 316 cars, or about 63%.

Two additional hog feeding demonstrations were started on the farm of E. W. Brown during the week. In one of these, 23 fall shoats will receive a ration of alfalfa hay, ground barley in a self-feeder and meat meal in another self-feeder. In the other demonstration, 22 fall shoats will receive a ration of ground barley in a self-feeder and alfalfa hay. In other words both lots will receive the same ration except one lot will receive meat meal in a self-feeder. These demonstrations will throw some light on the value of meat meal as a feed for shoats. These demonstrations are exactly similar to the demonstration recently started on the farm of Mr. Young except that Mr. Young's shoats will receive a limited amount of skim milk,

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton.

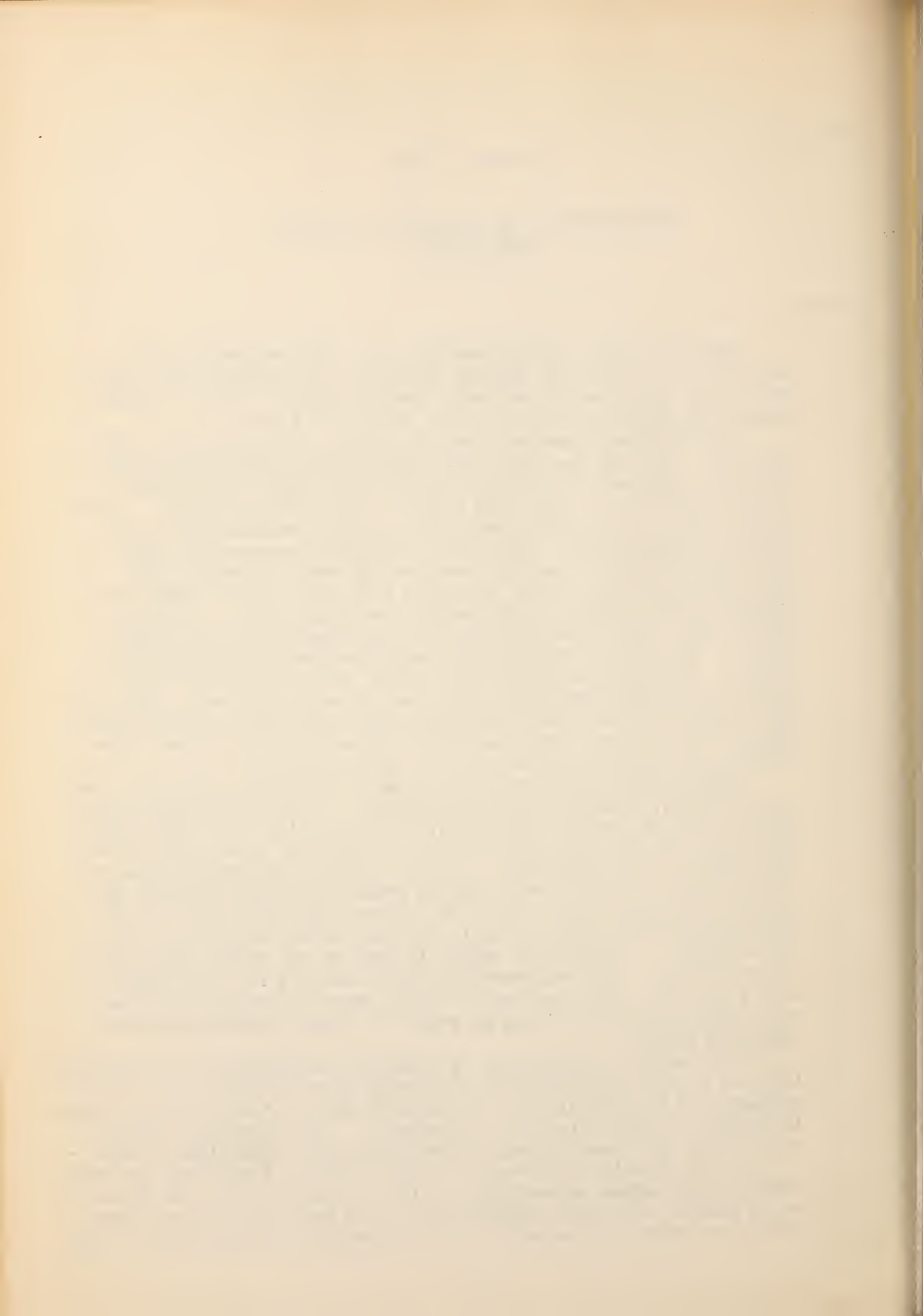
During the week ending December 18, a trip was made to the coast for the purpose of meeting dairymen and visiting dairy farms. One day was spent assisting Prof. Nystrom conduct a dairy judging contest at Snohomish in which about 80 boys took part.

The Hollywood farm near Seattle was the most interesting farm visited. The herd includes about 300 purebred Holsteins and the principal interest, aside from official test work and breeding, is the production of certified milk for the city of Seattle. Most of the cows in the working herd are good sized animals with fair records of production. The first impression one received when entering the barn is that the cows are extremely uncomfortable. They are washed twice daily with warm water but at this season are undoubtedly the worse off physically for their baths. There is considerable foot trouble, but this is quite general in the coast region. Mr. Orton, of Puyallup, considers the washing unnecessary as he is producing certified milk with a bacterial count as low as that of the Hollywood farm and does not wash his cows. The last three counts of Mr. Orton's milk have been about 400 and the last 10 counts have averaged less than 700. He had a vacuum system demonstrated in his dairy but was not satisfied with it.

The Hollywood heifer calves are fed in individual pens for from 2 to 4 months, depending upon the weather. They receive whole milk for not over two weeks, and thereafter their ration is of skim milk and clover hay with all they wish of a mixture of equal parts ground oats, bran and soy bean meal. They go from the individual pens to larger pens and are put on a limited grain ration with alfalfa hay. In the spring they go to the hills and are kept there until about two months before they are due to freshen, being brought back only for breeding. Some hay is hauled to them in the winter and is fed in open sheds. The two-year-olds due to freshen in a few weeks were good sized, well developed, looked rough and sturdy and ready to do good work in the dairy by reason of strong constitutions and excellent health.

The manager of Hollywood, is beginning an experiment to determine the cost of raising heifers to freshening under this system. Strict account will be kept of all feed consumed and all time and labor spent in caring for the calves to be concerned. This data will probably be given to the state college and to this office from time to time.

At one time the Hollywood farm kept about 50 brood sows but have reduced that number to about 20. Pigs are sold at 20 to 40 pounds as young roasts, and those weighing 150 to 175 pounds and in fair condition are made into sausage. All deliveries are made direct to the



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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued)

consumer from the city milk wagons. The roasts bring from four to five dollars and the sausage nets a varying profit, always above market price. The sausage is made one-quarter fat and three-quarters lean and some lard is left for use in the farm kitchen or sold direct.

Cows on official test are tied in wide individual stalls instead of in the customary box stalls. The reasons given for this practice are that the cow keeps cleaner, is more contented when side by side with others, less labor is required for feeding and caring for the stable and that the amount of straw required is reduced to one-fifth or one-sixth that required for the box stalls. The cows at Hollywood, in the isolated stable where the official work is done, were certainly a contented, well appearing lot and were making good records.

In general, dairy conditions on the coast are better than they were a few months ago. While feed prices are higher than last season, especially alfalfa hay, which comes principally from the Yakima Valley, and while some dairies claim to be selling whole milk at a loss, prices for milk have advanced. This is especially true in the condensery districts and seems to be a natural result of better economic conditions reported all over the coast region. Many lumber mills that have been closed for several months and others that have been operating on part time, are now running at about their capacity. One result of the better conditions is reflected in a growing tendency for farmers to keep their dairy stock, though many are still willing to sell on account of the condition of their bank accounts and the high prices of feeds.

Truckee-Carson.

During the week ending December 18, 28 calls for assistance were received and eleven farms were visited upon request.

A Treatment for Sterility in Cows.

During the past few months the diarmen on the project have experienced considerable difficulty with sterility in their cows. Some of this trouble has occurred with cows since they were imported into this project, but the greater part of it was brought in with importations. Sterility in dairy cattle has been a dis-

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Truckee-Carson (continued)

couraging feature in many instances here. Some of the trouble can be attributed to the after effects of abortion which is very common here. Retained placenta, which very often follows abortion, when the calf is carried past the sixth month, is generally considered to be a common cause of sterility. Abnormal conditions of the vagina, which result in acid secretions from the same, kill the spermatozoon, preventing conception. Very often it has been found that the os-uteri of the cow after having been badly lacerated from previous parturition, has healed in such a manner as to cause the os-uteri to be closed. In one instance the os-uteri of an aged cow was so completely healed over from previous laceration that the opening through the neck of the womb was completely obliterated.

Up to the presenttime calls have been received to treat 12 cows for sterility. Some of these animals required more than one visit. Only two of these animals have failed to conceive. Some of them had been sterile for over a year. Practically the same method of treatment was used for all of them, as follows: Manual manipulation of the ovaries through the walls of the rectum, and a thorough washing of the vagina with one part of permanganate of potash to one thousand parts of water. This is followed by wash with a solution of one ounce of baking soda to one gallon of water. The use of the soda is to make sure that there is no acid condition of the vagina at time of service. In addition to these treatments, it is important to always make sure that the os-uteri is dilated. Sometimes it requires considerable time to affect an opening. An instrument for this purpose is indispensable. In all the treatments given, the whole program has been carefully followed with each animal, so that it is not possible to tell always just what part or parts of the treatment have brought results.

The treatment above described have always been given at the period of heat of the cow. In addition, in some instances the antiseptic washing has been administered two or three times before the period of heat.

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1 January, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre.

Eight farms were visited during the week ending December 18. Snow fell during the week and was followed by freezing weather. Arrangements were made with 4 farmers for the testing of their cows in the near future. The testing will be done at one farm.

One carload of hogs belonging to two farmers was sent to the Denver market and sold at \$6.15 and \$6.20 per cwt. at Denver. It is reported that the Denver yards are receiving some small pigs weighing from 80 to 100 pounds.

A visit was made during the week to the farm of Mr. Nairne a farmer packer who is caring for 20 to 25 hogs a week, most of which are bought dressed from the farmers and worked over into special products which are sold from house to house in Montrose. Mr. Nairne is very competent as a meat packer and his products sell very readily. His fresh sausage is put up in two-pound bricks and sells at 17-1/2 cents per pound. Aside from hams, bacon, spare ribs and lard, he puts up what he calls a roll bacon, which is the side including the loin of a certain size hog. This is rolled into a tight roll and smoked, then wrapped in a sanitary package. This product is in great demand and sells very readily at high prices.

Butterfat is selling at 28¢ to the local creamery.

Several inquiries have been made recently regarding the purchase of dairy cows. Arrangements are being made to accompany a number of farmers to look over a herd of imported Holsteins which are advertised at Hotchkiss in Delta county.

At a sale attended during the week, 50 shoats weighing from 50 to 80 pounds were sold for \$3 per head.

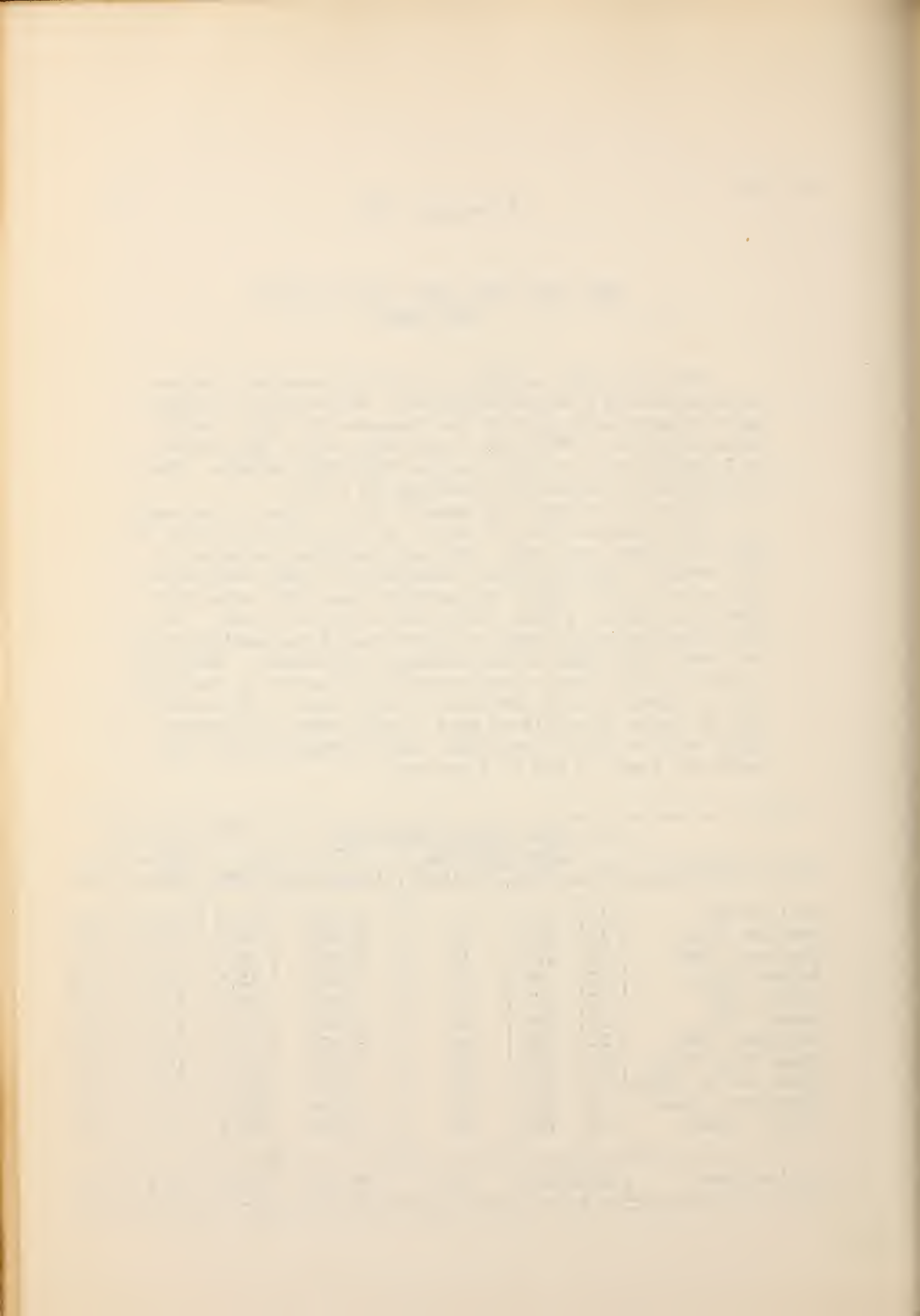
8 January, 1916.

SOME 1915 SUGAR BEET YIELDS IN UTAH
AND IDAHO.

The beet sugar industry in the inter-mountain states is experiencing a marked expansion. According to the Salt Lake "Deseret Evening News" for December 18, 1915, the 12 sugar factories in Utah and Idaho will handle approximately 1,035,000 tons of beets in the 1915-1916 campaign. The prices paid are expected to average \$5 a ton.

The same newspaper contains a list of some of the most successful farmers who sold beets to 11 of the factories in Utah and Idaho last year. The list includes the names of 157 farmers, together with a statement of their beet acreage and yields in 1915. Presumably, these 157 farmers produced the largest yields in the territory last year. In the following table there are given some data compiled from the report published in the newspaper mentioned. These data are from 157 farms contributing to 11 factories and having an aggregate beet acreage of 3,966 acres. In considering the table it should be kept in mind that the figures apply only to the 157 selected, and presumably best, beet-producing farms in the 11 districts.

Factory Districts	Of Farms Reported				Yield per acre, tons		
	No.	Beet Acreage		Total Yield, tons	Max.	Min.	Av.
		Total	Per farm				
Lehi, Utah	14	112	8	2,486	27.6	20.6	22.2
Garland, Utah	19	592	31	10,360	26.5	12.5	17.5
Elsinore, Utah	12	175	15	2,886	22.8	14.9	16.5
Payson, Utah	12	99	8	1,931	25.0	18.3	19.5
Ogden, Utah	15	275	18	5,479	34.0	13.0	19.9
Logan, Utah	15	183	12	3,222	20.5	16.0	17.6
Lewiston, Utah	22	739	33	12,289	27.2	13.0	16.6
Sugar City, Idaho	10	218	22	3,862	24.0	16.0	17.7
Idaho Falls, Idaho	11	419	38	7,075	20.4	16.0	16.9
Blackfoot, Idaho	9	391	43	6,008	25.0	13.5	15.4
Burley, Idaho	18	763	42	13,543	27.4	14.6	17.7
11 districts	157	3,966	25.2	69,141	34.0	12.5	17.4



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Sugar Beet Yields (continued).

The table shows that the average beet acreage per farm on the 157 selected farms was 25.2. The largest individual acreage was 195, in the Blackfoot, Idaho, district. The smallest was 2 acres in the Sugar City, Idaho district. The total yield of the 3,966 acres contained in the selected farms was 69,141 tons. The average yield of the 157 farms was 17.4 tons per acre. The highest individual yield was 34 tons per acre, which was secured by a farmer in the Ogden, Utah, district from a field of 7 acres. The lowest individual yield was 12.5 tons, which was secured by a farmer in the Garland, Utah, district from a field of 105 acres.

It is interesting to note that the highest average of any group of farms was obtained from the Lehi, Utah, district, where the average of the 14 selected farms was 22.2 tons per acre. The oldest sugar factory in the inter-mountain country is the Lehi factory, which has been in operation for about 25 years. Apparently the farmers in that district have learned how to produce high yields. As shown in the table, the only district showing an average yield of more than 20 tons from the selected farms is the Lehi district.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Huntley.

Sugar Beet Root Louse Experiments in 1915.

An experiment started in 1914 to determine means of controlling the sugar beet root louse was continued in 1915. This work is done in cooperation with the Biological Department of the Montana State Experiment Station. The damage caused by invasions of the root louse is often serious and may result in greatly decreased yields in beets that are badly infested. The root louse lives over winter on the ordinary narrow leaved cottonwood trees. Migration to the beet fields occurs during the latter part of June and early July. A dry, cracked soil at this time appears to be favorable for the lice to become established around the beet roots.

The plan of the experiment provided in one case for keeping the soil thoroughly irrigated and cultivated at all times

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

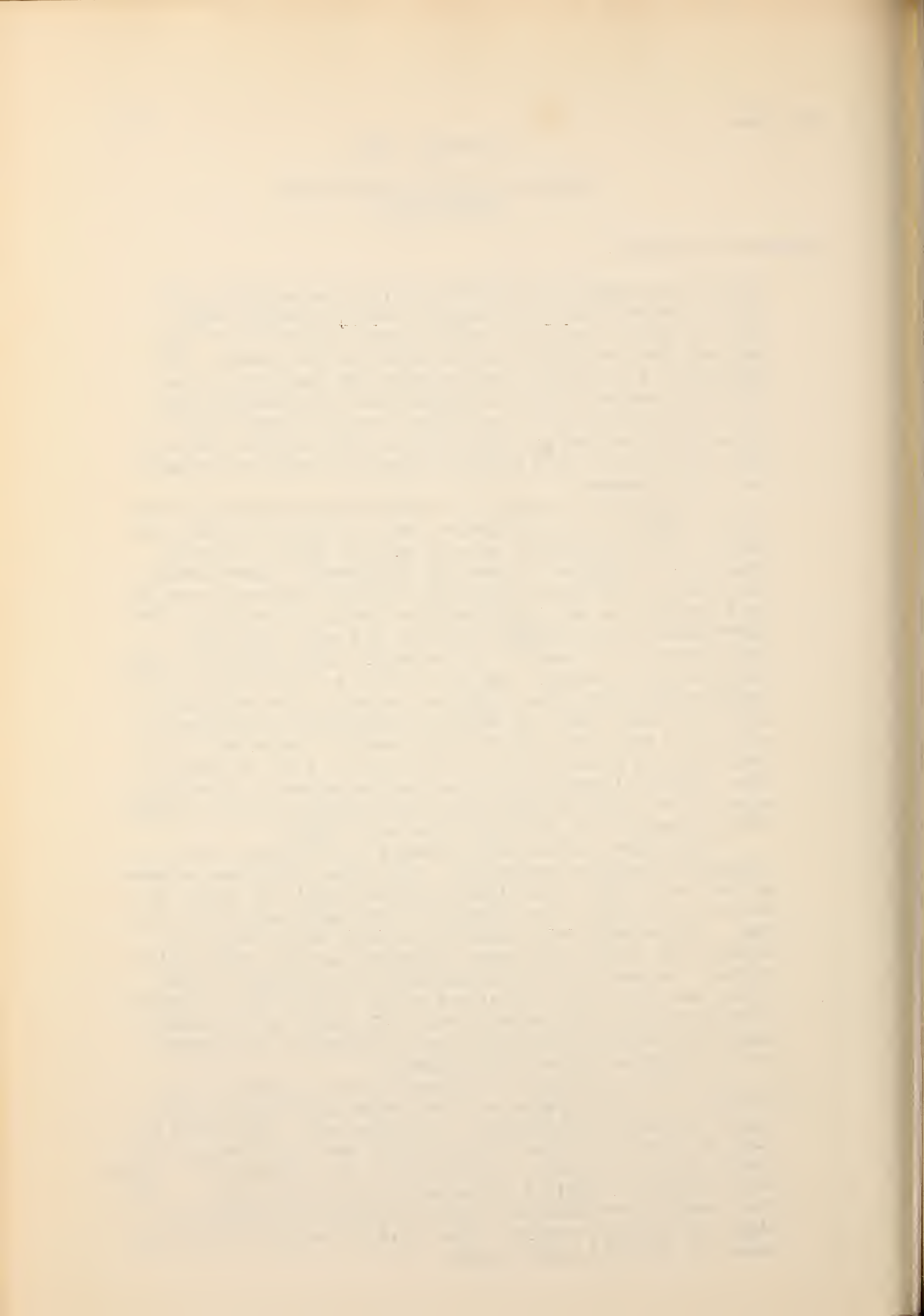
Huntley (continued).

during the season and especially during the migration period of the root lice. In another case irrigation water was not applied until the beets began to wilt from drought and only one irrigation was given during the season. A third set of plats was used in which the beets were given ordinary treatment as to irrigation and cultivation; that is, the first irrigation was given as soon as the beets appeared to require it, which was in early August, and were kept moist and in good growing condition during the remainder of the season.

The test was conducted in triplicate on one-tenth acre plats. Plats 1 to 6, inclusive, were in beets in 1914, and plats 7 to 9, inclusive, were in oats in 1915. The "wet" plats were irrigated 4 times and cultivated 4 times during the season. The plats receiving ordinary treatment were given 2 irrigations and 3 cultivations during the season. The "dry" plats were irrigated but once and were given two cultivations. Because of the unusually large amount of rainfall during the season, the soil on all of the plats was thoroughly moist during the migration period of the root lice, with the result that the amount of injurious infestation on any of the plats was comparatively small. The extent of infestation was determined by examining each beet at harvest time. What difference there was in the extent of infestation appeared to favor the plats that had received but one irrigation, although that difference was very slight.

The highest yields were obtained on the plats that received the ordinary irrigation. The lowest yield was secured on the "wet" plats, the yields being affected, no doubt, by the heavy irrigation in addition to the large amount of rainfall. There was a very marked difference in the amount of infestation between the beets following oats and those after beets. The percent of beets infested in any degree on the former was 70.2, and the percent of beets that were considered to be injuriously infested was 4.70, while in the latter only 28.9 percent of the beets were infested in any degree and 0.73 percent injuriously infested.

In 1914 the amount of infestation was apparently controlled to a large degree and the yields increased by applying an unusually large number of irrigations. The yields secured on the "wet" plats averaged about two tons per acre more than on the "dry" plats, and only about 30 percent of the plants were infested as against 63 percent on the "dry" plats. Similar results were secured in 1914 in similar experiments at Edgar and Bozeman, Montana. The rainfall during the growing season of 1914 was about normal.



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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

The two years' results would indicate that control measures by irrigation will be effective only in years when the rainfall is not above normal. The yields and other data are summarized in the following table:

Plats	Stand per acre	%	%	Tons	Weight per beet	Sugar Content, %		
						Av. beets	In- fested	Not In- fested
Average, 3 "wet" plats, 1-4-7....	16,933	44.2	1.83	11.45	18.7	17.6		
Av. Ordinary plats, 2-5-8....	17,556	46.5	2.91	13.91	25.5	16.9		
Average, 3 "dry" plats, 3-6-9....	18,010	30.8	1.76	12.18	22.4	16.4		
Average of all infest- ed beets..							16.5	
Average of all beets not in- fested....								16.7

Plats 1, 4 and 7 were irrigated four times on the following dates; July 13, July 28, August 11 and August 30. These plats were cultivated on June 22, July 12, July 23 and August 11.

Plats 2, 5 and 8 were irrigated on August 11 and August 30, and were cultivated on June 22, July 9 and July 15.

Plats 3, 6 and 9 were irrigated on August 30, and were cultivated on June 22 and July 15.

Plats 1 to 6, inclusive, were on land that was in beets in 1914, and plats 7, 8 and 9 were in oats in 1914.

The yields of sugar beets in Field K for the season of 1915 was below that for 1914. The average yield was 9.58 tons per acre, as compared to 11.16 tons per acre for the previous year. The average percentage of sugar was higher, being 17.2 and 17.7, respectively, for 1914 and 1915. The lowest yields

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

of beets were obtained on plats following oats in a rotation without manure.

The results obtained for the season of 1915 are given in the following table:

Rotation No.	Plat No.	Pounds per plat	Tons per Acre	Per-cent Sugar	Per-cent Tops	Stand	Wt. per beet, oz.
67	K-II-3	7311	14.32	18.7	44.9	26,696	15.7
61	K-III-3	4363	8.73	17.7	40.8	32,416	8.6
60	-9	6452	12.90	17.4	37.0	27,136	13.0
31	-15	4563	9.13	18.2	30.6	31,360	10.4
40	K-IV-1	7726	15.45	15.0	46.5	28,160	17.5
42	-7	3826	7.65	16.8	46.2	24,320	10.1
30	-17	2425	4.84	17.0	33.3	28,672	5.4
32	-20	3168	6.34	17.5	30.3	30,848	6.6
18	K-V-3	2970	5.94	18.2	35.1	23,424	8.1
20	-5	4166	8.33	18.1	38.8	19,456	13.2
22	-7	3400	6.80	17.3	32.6	28,672	7.6
21	-13	6397	12.79	18.7	38.7	23,296	17.5
23	-15	5345	10.69	18.1	36.1	28,928	11.8
2	-22	4993	9.98	19.3	30.6	26,752	15.7

Scottsbluff.

During the week ending December 25, the corn on field K was husked and hauled.

A farmers' meeting was held during the week. The number present was about 35.

San Antonio.

During the week ending December 25, the maximum temperature was 75; minimum temperature, 29; and greatest daily range, 40. Clear weather prevailed throughout the greater part of the week, and was favorable for outside work.

Plowing of sorghum plats in the rotation experiments was completed. Practically all the plowing on the farm has now been finished, this work being much farther along than usual. The fall has been very favorable for field work and considerable plowing has been done by the farmers

8 January, 1916.

WESTERN IRRIGATION AGRICULTURE.

Field Notes.

San Antonio (continued).

of the region.

The fence around the oats pastured with steers was completed and the steers turned in on the 20th. The steers and hogs were weighed on three successive days the first part of the week, in order to get an average for the initial weight of the animals. The pigs averaged about 35 pounds each. The average weight of one steer on three days was 444 pounds and of the other 499 pounds.

Brick bats were hauled and the cess-pool at the new residence was walled and covered during the week.

Truckee-Carson.

During the week ending December 18, the maximum temperature was 53; minimum temperature, 30; precipitation, .32 inch.

During the week ending December 25, the maximum temperature was 58; minimum temperature, 18; no precipitation.

Two men and four horses were occupied throughout the two weeks ending December 25 clearing and leveling land south of field B. One man continued the work of painting buildings and repairing tools and machinery.

The weather continued mild for the month of December, so that the field work over the project was not interrupted.

Water samples from two wells have recently been analyzed in the laboratory, one showing 0.444% total salts, and the other, 0.547%. In both cases animals drinking the water were in poor health, which improved immediately when they were changed to better water. This would indicate that the maximum amount of salts allowable is below 0.4%. In reporting the results of water analyses the following classification has been used:

0 to .1%	total salts	Good
.1 to .2%	"	"Fair
.2 to .3%	"	"Usable, but not desirable.
.Over 3%	"	"Bad

8 January, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma.

During the week ending December 11, the maximum temperature was 79; minimum temperature, 32.5; and the greatest daily range, 42.

Eleven acres were irrigated.

The stock pasture B-39 to 45 was disked and seeded to barley.

Cotton picking was completed on E-1, A-13₄ and A-107. The per acre yields of Tuxtla and Blackseed cottons were as follows:

Blackseed (E-1)....932 lbs. Seed cotton.

Tuxtla (A-13₄)..930 lbs. Seed cotton.

The bed planting of Durango cotton yielded on the entire block at the rate of 1823 pounds of seed cotton per acre. This planting method on medium soil gave a yield of 2477 pounds per acre while on light sandy soil 1478 pounds per acre were produced. Selections were made and cotton picking begun on B-27-28.

Picking of the thinning test of Durango on C-27 was completed the week ending December 11. Results were as follows: recorded in average yield per acre of seed cotton.

Spacing in rows	Yield per Acre Pounds Seed Cotton.					
	18" rows	22" rows	30" rows	36" rows	44" rows	Average
18 to 20"	1507	1667	1187	1196	1673	1446
12 to 14"	974	1547	819	1069	1675	1177
6 to 8"	1823	1832	1127	1410	1403	1519
3 to 5"	2025	1713	1372	1176	1524	1562
Average	1557	1690	1126	1213	1569	----

The results of this experiment do not show as markedly as usual the increase in yield as the thinning distance is decreased. This cotton, although of a good stand and well grown in the early season suffered from a severe wind storm late in August, which retarded further development of the main plant and forced basal sprouts. This unnormal development undoubtedly depressed the yields.

Sorghum borders D-39-40-44-45- and D-35 to 43 inclusive were plowed. Alfalfa on D-22 and 26 was harvested.

A cement threshing floor was made as much difficulty has always been experienced in setting the machine and engine on the light soil.

During the week ending December 18, the maximum temperature was 74; minimum temperature, 23.5; greatest daily range, 39.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma (continued).

Nineteen acres were irrigated.

The final picking of cotton in the time-of-planting test was begun.

Threshing of alfalfa seed plats was begun.

During the week ending December 25, the maximum temperature was 74; minimum temperature, 29; greatest daily range, 37.

The second and last picking of cotton was made in the time-of-planting test, C-19 and 20.

Jack beans were harvested from plats A-10-8 and A-14-7. Although there was quite a heavy set of seed on these plants, a large portion were not matured before being caught by frost.

The following lands were plowed, having been in sorghum, alfalfa, and cotton: D-8, 9, 12, 14, 16; E-1-3-4.

The threshing of alfalfa and Sudan grass seed and grain sorghums was completed during the week.

Weekly irrigations have been discontinued for the winter season, and water will be available only every fourteen days until spring planting begins.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes.

Tieton.

Monday of the week ending December 25 was spent in Lewis County, Washington, in the section around Chehalis. A trip was made into the dairy section with Messrs. Meyer and Gibson, of the U. S. Dairy Division, engaged in organizing a cow testing association. The purpose of the trip was to study dairy conditions in that section and to ascertain the quality and prices of young dairy cattle.

Very few good cows were found on the 10 farms visited. The majority of cows were undersized and of poor type. With few exceptions the stables were dark, dirty and generally undesirable. The new stables and better herds were found on the same farms. Two farmers were using grade bulls, two had pure bred bulls showing little evidence of dairy qualities, and the others owned or were using good pure bred sires. Local stock buyers bought several old cows, heifers and steers from this district last fall. Men who have plenty of feed are not selling stock at present and those who are buying feed have either sold previously or their animals are not the desirable kind.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued).

Some time was spent with the local manager of the Pacific Coast Condensary, and with the field agent of the same concern. They reported that they are paying \$1.65 per cwt. for milk, whereas about a month ago the price was \$1.35. The market for condensed milk is steadily improving, and they expect to pay a higher price for milk in the near future. The manager stated that three-fourths of their product is sold in the large coast cities. He believes the convenience of handling canned milk, its keeping qualities, and the difficulty of keeping ordinary market milk are the reasons for city sales. Washington dairy laws do not provide for the standardization of condensed milk and the local product cannot be marketed in competition with the eastern canned milk.

One day was spent at the office of the Pierce County Rural Development Association at Tacoma, in going from Chehalis to Tacoma and from Tacoma to North Yakima. Although the coast pastures are green and appear to have considerable feed in them, there are very few cows outside the stables or lots. When asked in regard to this the farmers invariably replied that they can get more feed from a pasture by giving it from one to three months rest during the winter season. Those questioned in regard to the yield of pastures estimated it at about two acres per cow per year except on the very best meadow land.

Two days were spent in the office upon returning and one day at testing milk. Six letters have been received in reply to the circular letter in regard to buying cows. Several calls have come in for assistance in milk testing and keeping records. It was planned to begin work in the community from which these calls came later in the season when travel could be done by auto. One day's work will be taken up in that community at this time.

Huntley.

During the week ending December 18, a three-day short course in home economics was held at Ballantine by Miss Jensen, under the auspices of the Extension Department of the Montana State College working in cooperation with the Project Womans' Club.

Prof. F. S. Cooley spent one day on the project and delivered a short address to the high school boys at Worden.

A pig feeding demonstration was started on Mr. Orville Clark's place during the week. It will consist of keeping rec-

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

ords on five old sows to determine the cost of getting them ready for market. Feed will consist mostly of corn. Some wheat and some alfalfa hay may be fed.

Twelve calves were vaccinated against black leg during the week.

Cooperative Shipments of Hogs.

Recently three car loads of hogs have been shipped from the project to Omaha, seventeen farmers shipping together to make up the three loads. A total of 291 hogs were shipped in the three cars. Details of these shipments are contained in the following tabulated statement. Cars 1 and 2 were shipped together, leaving Huntley November 26. Car 3 left Huntley December 9.

<u>Car Number</u>	<u>1</u>	<u>2</u>	<u>3</u>
Number of farmers cooperating	6	2	11
Number of days en route	4	4	3
Total number hogs in car	97	94	100
Average weight per hog, pounds	186	171	195
Weight at home, pounds	18030	16125	19472
Weight when sold at Omaha, pounds	16780	15000	19050
Shrinkage, pounds	1250	1125	422
Freight rate per cwt.	51¢	51¢	51¢
Freight and terminal charges	\$91.95	\$91.95	\$122.38
Yardage, Omaha	\$7.76	\$7.52	\$8.00
Feed en route and at Omaha	\$13.65	\$13.65	\$18.15
Inspection and insurance	20¢	20¢	20¢
Commission	\$10.00	\$10.00	\$10.00
Attendants expenses(return ticket)	--	--	\$18.82
Total expenses on each car	\$123.56	\$123.32	\$177.55
Total expenses per cwt.	\$1.12	\$1.20	\$1.05
Price received per cwt. at Omaha	\$6.20	\$6.20	8970 lbs. @ \$6.20 10080 lbs. @ \$6.00
Gross returns per car	\$1039.74	\$930.00	\$1160.94
Net returns per car	\$916.18	\$806.68	\$983.39
Net returns per cwt. at Huntley	\$8.08	\$5.00	\$5.05

On the first two cars a very large shrinkage was obtained, due to delay in transit and insufficient feed en route. The returns on car 3 are about what should be expected under normal conditions so far as shrinkage and expense of shipping



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Field Notes.

Huntley (continued).

are concerned. Where two cars are shipped at once the attendant's expenses are reduced to practically nothing. In the case of the third car, the price of a return ticket to Huntley from Omaha is charged against the proceeds.

Shoshone.

Two stock sales were attended during the week ending December 10. The stock at both of these sales went for rather low prices, due probably to the fact that hay is going up in price, and the stock were in poor condition. Then, too, there have been so many sales on the project this fall that the farmers seem to have bought all the stock they want.

Thirty cows were tested for three men and a milk testing demonstration was given before the members of the milk testing club in the Eighth grade of the Powell School.

During November G. W. Atkins fed each of his cows 40 lbs. corn silage and 5 lbs. alfalfa hay daily. The alfalfa hay was figured at \$6.00 per ton, and the corn silage at \$4.00 per ton, making a total cost of feed per cow of \$2.85. The price received for the butter fat was 29 cents per pound. The skim milk was not considered, as the skim milk, manure and calves are charged against care, interest and depreciation. The three older cows are mixed Shorthorn and the remainder are grade Guernseys, sired by a pure bred bull. Some of the other data are given in the following table:

Cow No.	Age, Years	Month of lactation	Milk Lbs.	Test %	Butterfat		Value of Fat, Less Cost of feed	Returns per Dollar of Feed Cost
					Pounds	Value		
1	6	3	630	4.4	27.72	\$8.04	\$5.19	\$2.82
2	3	8	210	5.8	12.18	3.53	.68	1.24
3	2	7	400	5.2	20.80	6.03	3.18	2.11
4	2	8	350	5.0	17.50	5.07	2.22	1.78
5	5	3	455	4.2	19.11	5.54	2.69	1.94
6	5	4	545	4.0	21.80	6.32	3.47	2.22
7	3	2	650	4.6	29.90	8.67	5.82	3.04
8	2	8	300	5.1	15.30	4.43	1.58	1.55
9	2	2	390	3.8	14.82	4.30	1.45	1.50
10	2	4	410	4.6	18.86	5.46	2.61	1.91

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Field Notes.

Shoshone (continued).

During the month of November the herd belonging to W. E. Bartlett was pastured on beet tops and fed some alfalfa hay. It was estimated that each cow consumed one-third acre of beet tops, valued at \$3.00 per acre, and ten pounds of alfalfa hay per day valued at \$6.00 per ton, making a total feed cost per cow for the month of \$1.90. The butterfat was valued at 29 cents per pound. Other data of individual cows for the month were as follows:

Cow No.	Breed	Age, Years	Month of lactation	Milk Lbs.	Test %	Butterfat		Value of Fat, less Feed Cost	Returns on Dollar of Feed Cost
						Pounds	Value		
1	Hol.	4	9	254	4.0	10.16	\$2.95	\$1.05	\$1.55
2	S.H.	6	9	206	6.2	12.77	3.70	1.80	1.74
3	Hol.	2	7	714	3.9	27.84	8.07	6.17	4.25
4	Guer.	6	9	239	3.8	9.0	2.61	.71	1.37
5	SHJer	4	5	452	5.6	25.31	7.34	5.44	3.86
6	Jer.	3	8	315	4.6	14.49	4.20	2.30	2.21
7	Hol. Jer.	4	3	1048	4.1	42.91	12.46	10.56	6.56
8	S.H.	5	3	829	4.1	33.98	9.85	7.95	5.18
9	Hol.	2	3	580	3.6	20.88	6.05	4.15	3.18

During the week ending December 18 two sales were attended, two farm visits were made, and twenty-three calls for assistance were received.

At one of the sales a number of cattle were sold which had been on the Reserve range all summer. A bunch of red yearling heifers sold for \$35.00 each; two black yearling heifers sold for \$29.00 each. Eleven red yearling steers sold for \$33.50 each; four black yearling, \$29.75 each; three red heifer calves, \$26.75 each; a two year-old Jersey cow, fresh in June, \$66.00; a large red and white cow, four years old, \$48.50; a red and white cow, three years old, \$40.00; and a young Holstein cow, \$35.00. These prices were typical of those paid for a number of other animals. It will be noted that the young stock brought fairly good prices, and that the cows brought very poor prices. This was due to the fact that the cows had been on the range all summer, suckling calves, and were in poor condition, that they had begun to fail in their milk, and that they were bred on the range to a rather poor grade of beef bulls.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

The stock at the other sale went for low prices because farmers are getting overstocked and fear that the cost of feed for the winter will be very high.

A testing demonstration was given before the Garland milk testing club, each member of which had brought in a sample from the cow on which his record is being kept. At present there are five members in the Garland club and eleven members in the Powell club.

An article was published in the local papers, on the advisability of concrete silos on the project, in comparison with stave silos. It pointed out that concrete construction has been successful on the project, that good gravel is available to many of the farmers, that the concrete silos are an undoubted success, and that where the farmer has time to do the necessary hauling during slack seasons, when his labor can be figured at a reasonably low price, there is a decided saving on concrete silos in comparison with stave silos which have been built on the project.

The care of bulls is a very serious problem on the project, due to the fact that there is so much sterility, which apparently is due to contagious abortion. One farmer has a pure bred bull from a cow which gave 14,000 lbs. of milk in a year, and he is expecting to keep the bull until his heifers are in milk. There is a demand among the neighbors for service by this bull, and there is great danger that he might be given disease which will make him worthless. The owner was advised to put the bull in a large pen and allow him to serve no cow regarding which there was the slightest suspicion of disease.

Uncompahgre.

Eight farms were visited during the week ending December 25. Twelve cows, belonging to four farmers, were tested for butter fat.

As a result of several inquiries from farmers regarding a herd of imported Holstein heifers at Hotchkiss, in Delta County, which were advertized for sale, a trip was made to look over the herd, in company with one of the interested parties. The heifers, part of which have been on the place for a year, were said to have been imported from Wisconsin. There are some pure breds in the herd, but most of them are grades. They are all

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Field Notes.

Uncompahgre (continued).

very much undersized and of poor conformation. The prices asked range from \$70 to \$90, which was very high for the class of animals offered.

Another trip was made with three farmers to look over two herds of Holsteins near Montrose. Both herds have been offered for sale. These animals, part of which are very good, are all held at very high prices.

Plans were discussed with the teacher of agriculture in the Montrose High School, and also with the city superintendent, regarding the organizing of pig clubs in connection with the other school clubs. It is planned to start this work early in January.

On Tuesday, a sale of pure bred Duroc Jersey hogs was attended. About 100 hogs were sold at very low prices. The bred gilts averaged \$15, while boars sold from \$12 to \$15. All were subject to registry. These hogs are widely scattered over the project as the result of the sale, and it is hoped that it will result in the improvement of the breed generally over the project. While at the sale, 10 farmers were consulted regarding live stock problems, and 3 requests to visit farms were received.

Five cars of hogs were sent to the Denver market from Olathe during the week. The price received has not yet been learned.

The condition at the local creamery is improving under the management of a new buttermaker. The quality of the butter is improved by the grading of the cream. More demand for the butter locally is being created. Outside creameries are offering 36¢ for butterfat while the price locally is but 28¢. The larger part of the farmers are standing by the home plant with the hope of better price later. The creamery patrons are mostly small shippers. Some \$2000 is being distributed monthly to the farmers for cream. The interest in one breed of dairy cows for the project is very strong, Holsteins being the most popular.

One of the Montrose mills is putting out a very high grade of shorts at \$1.25 per cwt. As there is no market for low grade flour a greater part of the shorts is Middlings. This is being used for young pigs with very good success.

One very interesting pasture was investigated at the farm of Mr. Lamb. It contains blue grass and white clover in one section and orchard grass, blue grass and alsike clover in another section. Mr. Lamb reports having kept 10 cows on 10 acres in summer. This is very encouraging, as the land

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

used is very shallow and unfit for other crops. Mr. Lamb carries on a rotation and produces very large crops on the better part of his farm, securing such yields as 54 bushels of wheat and 175 sacks of potatoes. He keeps up his soil fertility with cows and alfalfa.

Owing to heavy snowfall, the first part of the week ending January 1 was spent in the office. The snow at present is one foot deep in the valley and two feet in the hills.

On Wednesday a trip was made to Delta to attend the Western Slope Poultry show and the annual meeting of the Delta County Live Stock Association. A talk was given on live stock problems in the valley. The Delta County association is one of the strongest in the State. This was their tenth annual meeting. The attendance was 75. The total membership is 300.

The interest was very good in improvement of the stock on the range by the selection of the best bulls possible. There is a hearty cooperation between the members and the Forest Service people. Several of the local and district forest officers were present and outlined the plans for the year in the management of the range. The spirit of the meeting was favorable for the improvement of range conditions.

A meeting was held at Delta of a committee of business men who are interested in the importation of some purebred Holstein heifers of the best strains to improve the quality of the dairy cow on the project. They plan to import 100 animals. Each business man is to take one of these heifers and care for her in the best way under the local conditions. The calves are to be furnished to the farmers at the least possible cost. Detailed records are to be kept. Bulls from the best cows are to be turned over to the farmer, the poorer ones being sold for veal. The assistance of the college and Government men is being asked in the selection of these animals to guard against disease.

Boise.

Another case of hog cholera appeared on the project during the week ending December 25. This was the third outbreak in the Wilder district since November 1, the first case being ap-

8 January, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Boise (continued).

parently the source of the other two. The last outbreak was in a small herd which was vaccinated on Thursday, and no losses had occurred up to that time.

Most of this week has been given to meetings, except for one day in Boise spent in conference with Reclamation Service and Extension Department officials.

On Monday a meeting was held at Hillsdale School House in Ada County with County Agents McCall and Williams. There were 28 present. Potato diseases and diversified farming were discussed.

On Tuesday, a meeting was held at Malba with Mr. C. C. Fisher, of the Reclamation Service. Irrigation methods and diversified farming were taken up. There were 63 present, and the interest was unusually strong. A temporary farmers' organization was voluntarily formed after brief comment on the advantages of organized efforts in various lines.

On Wednesday two meetings were held at Southside Boulevard Church, near Nampa. D. C. Mullen, sheep-grower and J. S. Stinson, dairyman, assisted at this meeting. At all of the above meetings the interest was very good and further meetings have been requested. Four meetings have been arranged for next week at other points.

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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

During the week ending January 1, the maximum temperature was 84; minimum temperature, 23; and greatest daily range, 39. The minimum temperature for the winter thus far was recorded. The latter part of the week was cloudy and threatening, but only .04 inch precipitation was recorded.

Plowing was continued and parts of fields A3 and B2 were plowed. Manure was hauled on plat B4-12. Considerable time was spent in fence building in connection with the pasturing experiments. The steers and hogs were both moved to new plats during the week, the oats on the plats being pastured having become eaten rather close.

The week ending January 8 was unusually warm for the season of year, the maximum temperature being 81, and minimum, 42. The entire week was cloudy and threatening, some rain falling every day, though a measurable amount on four days only. The total precipitation amounted to .29 inch.

The principal field work was that of hauling manure, the following plats being manured: B4-12 and 13, A6-2 and A5-11. Some plowing was done on field C3. Plats on which volunteer oats had made considerable growth were double disked. Some time was spent in digging post holes and setting posts.

The warm, damp weather which has prevailed during the last two weeks has caused the oats and peas and other winter crops to make a rapid growth. Johnson grass has sent out green shoots to a height of six or seven inches.

Scottsbluff.

On Friday, of the week ending January 8, 240 lambs were shipped to South Omaha. This leaves 40 head over that will have to be shipped at a later date. The average weight of the tops was 87.66 pounds, and the average of all was 84.21 pounds.

Over 20 cars of sheep and lambs went out Friday from Morrill, Mitchell, Covert, and the Sugar Factory. No lambs were loaded at Scottsbluff. The yards at that point are closed on account of scab coming through there last week.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Truckee-Carson.

During the week ending December 25, twenty calls for assistance were received, and fifteen farm visits were made.

The greater part of the time was devoted to assisting the farmers in connection with impaction, sterility and udder trouble in dairy cattle.

Because of the increased interest among the farmers of this locality in the shipping of dressed pork and veal to the San Francisco and Oakland markets, an article was sent to the local papers setting forth the federal and city inspection requirements, for the purpose of informing prospective shippers of dressed meats.

During the week ending January 1, there were received twenty-one calls for assistance and ten farms were visited.

Importations of dairy cattle into this valley continue. In December there were 70 head of springing two-year-old grade Jersey heifers imported from Oregon. This importation was made by the ranchers. The price paid in Oregon was \$40.00 per head. Mr. F. E. Mobley, the pioneer Jersey man of this valley, and the first man to have a herd of registered Jersey cattle in the State, is expected to arrive soon with 37 head of registered Jersey females and 2 registered Jersey bulls, which he has bought in Tennessee. This importation will be divided among 3 ranchers.

Practically all the alfalfa hay that was for sale in the valley has now been disposed of, and the financial situation among the farmers is considerably better than it was a year ago. The increased price of hay has not had any discouraging influence on the dairy business, but on the other hand has caused the farmers to look into the profitableness of individual cows. Heretofore, feed has been so cheap that almost any kind of animal would pay some profit and there was little incentive to breed up and select dairy animals. Much activity has been shown in the last month or so in the Babcock testing of dairy herds.

Boise.

Meetings in rural districts comprised the principal work of the week ending January 1. All of the four meetings were fairly satisfactory, considering weather conditions, which have been quite severe. The attendance was not large at any of the meetings but interest was good, and other meetings at the same places were requested.

Considerable snow has fallen and the temperature has gone as low

15 January, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Boise (continued).

as -4 degrees F. There have been no storms, however, that have been severe on live stock as there has been no wind or rain, and the snow has been dry.

One bunch of 10 calves were vaccinated for black-leg and several calls were made in the interests of cow testing. Mr. George V. Leighton of Meridian has just concluded some seven-day official tests and started two others.

Tieton.

Milk was tested on 10 farms during the week ending January 1. Four calls were answered by visits to the farms and four visits were made in regard to dairy records.

Eleven requests for assistance in buying dairy stock are now on file. Two of these are for immediate action and the others are from men who are planning to buy in the spring.

Attention was called by Mr. Alexander, of the Cottonwood district, to a striking illustration of the value of grain for growing calves. Two calves born in June, 1915, have been fed milk and alfalfa hay. Three late September and early August calves have had milk, alfalfa hay and grain. These calves are in two lots of about equal size and equally protected from the weather by open sheds. They are from pure bred Holstein bulls and grade cows. The dam of one of the younger calves was fed some barley previous to freshening, and the others were on pasture and received some alfalfa hay. One of the young calves was also the smallest of the whole number when born, but is now equal to the others. The milk allowance has been equal for both lots. The practice is to feed about 15 lbs. of whole milk per day to each calf until four weeks old. Skim milk is then gradually substituted in the same amount and fed until the calf is about five months old. Both lots have had alfalfa hay always before them. Grain has been fed at the rate of about one pound per calf per day, beginning as soon as they would eat it. Rolled barley has been used with a small amount of linseed oil meal, possibly one-twentieth part by weight. The older lot is in poor flesh, have large paunch development and a generally unthrifty look. The younger, grain fed, lot are practically as large as the others, are in fair growing condition, with loose skin, some flesh over the bones, plenty of energy, and normal body development.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre.

The week ending January 8 was spent at the "Farmers Week" at Fort Collins, Colorado.

The farmers' short course was well attended. The chief subjects discussed were dairying, animal husbandry, farm management, rural credits and marketing.

On the return trip to Montrose, a pure bred Holstein herd for sale at Pueblo was visited. This herd is said to be the best in Colorado. The record of one cow, Lady Perfection, of his own breeding, is 37.41 lbs. butter in seven days, and 10,027 lbs. milk in 100 days. Dr. Work, the owner, has built up his herd by the selection of the best possible sires, having paid \$2000 for his herd bull. A bull calf dropped by Lady Perfection before her record was made, had been sold to a neighbor for \$500. Since the record was completed, \$2000 was offered for his return to the Work herd and was refused.

The snowfall of 15 inches last week has nearly all disappeared owing to warm winds and rain. The roads are quite sticky as a result.

Letters from different sources where Holstein cows and heifers are offered for sale were received during the week. These letters contain some very good offerings from Iowa and Wisconsin.

15 January, 1916.

AUSTRALIAN AND NEW ZEALAND COMPETITION
IN PACIFIC COAST BUTTER MARKETS.

Sometime ago Mr. Cline was advised by a dairy expert in California that the California dairymen were fearful of serious competition from New Zealand and Australia during the coming season. The Office of Markets and Rural Organization was requested to furnish us what information they had bearing on the possibility of this competition. The following is a copy of the letter received in response to our request.

OFFICE OF MARKETS AND RURAL ORGANIZATIONS.

Washington, D. C., January 4, 1916.

Mr. F. D. Farrell,
Bureau of Plant Industry.

Dear Sir:

With reference to the effect of importation of New Zealand and Australian butter in the Pacific coast markets, as mentioned in your letter of December 30, it is difficult to draw any definite conclusions so far in advance of the coming season. According to the "New Zealand Dairyman" many of the creameries are converting their plants into cheese factories because under present conditions it is more profitable for them to produce cheese than butter.

For some time, and at present, the London market has been firm on dairy products and practically all of the Australian and New Zealand butter for export has reached that market. The extreme drought in Australia and New Zealand during the past year, it is reported, has curtailed their dairy industry to a considerable extent. The season of heaviest production in Australia and New Zealand begins about November 15 and extends to January 15, and their largest exports occur during this period.

The San Francisco market at present is 26 cents for extras with little likelihood of it advancing appreciably this season.

With the London market firm and in view of the other conditions mentioned, it is quite unlikely that New Zealand or Australia will enter the Pacific coast markets this spring.

(Signed) Charles J. Brand.

THE COST OF A FIFTY-POUND PIG.

At this time of low prices for hogs it is particularly important to know something regarding the cost of producing pigs up to the age when they are placed on medium to heavy rations. In this connection, some information given in Nebraska Bulletin No. 121, "Growing Hogs in Nebraska", is of interest. This bulletin reports 5 different tests in each of which the cost of producing a 50-pound pig was determined. The bulletin states that "The plan followed in determining the cost of the 50-pound pig was to keep a record of the cost of keeping the dam a year and of keeping the pig until it reached the required weight and to charge all this cost to the pig, after deducting the increase in the weight of the sow during the year."

Cost of Fifty-Pound Pig (continued).

These 5 tests represented various methods and included sows of different ages. The prices used were as follows: hogs, \$5.90 per cwt.; corn, 47 cents per bushel; wheat, 70 cents per bushel; barley, 40 cents per bushel; rye, 56 cents per bushel; oil meal, \$30 per ton; tankage, \$40 per ton; alfalfa meal, \$15 per ton; chopped alfalfa, \$10 per ton; alfalfa hay \$8 per ton; and alfalfa pastured, 0.4 to 0.8 cents per day per hog.

Based on the above figures, the costs of a 50-pound pig in the 5 different tests were as shown in the following table:

No. of Sows	No. of Pigs Raised		COST OF A 50-POUND PIG	
	Total	Per Sow	Total	Per 100 Pounds
21	126	6.0	\$2.79	\$5.58
25	135	5.4	2.34	4.68
13	95	7.3	1.70	3.40
22	130	5.9	1.95	3.90
7	34	5.0	1.88	3.76
88	520	6.0	2.13	4.26

The average cost per 50-pound pig, when the 520 pigs from 88 sows were considered, was \$2.13, which is equivalent to \$4.26 per cwt. The cost per 50-pound pig varied from \$1.70 to \$2.79, and the cost per cwt. from \$3.40 to \$5.58.

It is suggested that each field man secure a copy of the bulletin mentioned and study these tests in detail. Advantage should be taken of any opportunity to secure similar figures from some of the better swine growers. So long as hog prices are low, information on the cost of production will be very acutely needed.

RESIGNATIONS.

It is requested that hereafter whenever practicable resignations be secured from employees leaving the service. This practice is to be preferred to requesting termination of appointment. For this purpose a supply of resignation blanks is being sent to each of the field stations.

22 January, 1916.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Yuma.

During the week ending January 1, a maximum temperature of 66 was recorded, minimum of 24, and greatest daily range of 35. The precipitation amounted to .07 inch.

Eight acres were irrigated.

Border A9 was manured in preparation for melon plantings. Borders C-44, 45, and D-38 to 42 were retouched and made ready for planting.

Cotton picking was completed on plats C 19 and 20. The total yields for the crop were as follows:

DURANGO COTTON.

DATE - OF - PLANTING TEST.

Individual Row Yields of Total Crop.

Thinning space 6" to 7".					Thinning space 12" to 14".					Grand avg. yield per acre, lbs. seed cotton
Date plant- ed	Yield per acre, lbs. seed cotton			% perfect stand	Date plant- ed	Yield per acre, lbs. seed cotton			% perfect stand	
	Row 1	Row 11	Avg.			Row 1	Row 11	Avg.		
4/9	2046	1482	1764	55.4	4/9	2464	1792	2128	87.5	1946
4/19	1098	2880	1989	95.3	4/16	1286	1376	1331	104.2	1660
4/23	1004	1062	1033	99.6	4/23	1206	1300	1253	100	1143
4/30	768	946	857	96.4	4/30	966	1180	1073	107.2	965
5/7	1006	1086	1046	95	5/7	1188	1188	1188	104.2	1117
5/15	1086	1562	1324	100.1	5/15	992	1224	1108	103	1216
5/24	1740		1740	59.3	5/24	1612		1612	92.3	1676
6/3	1554	1534	1544	101.1	6/3	1744	1554	1649	124.6	1595
6/11	958	1846	1402	96.2	6/11	1346	1674	1510	114.2	1456
6/17	874	1634	1254	72.3	6/17	1044	1614	1329	85.7	1292
6/24	834	934	884	61.7	6/24	994	934	964	87.4	924
6/30	538	616	577	68.5	6/30	756	898	827	84.3	702
7/8	358	536	447	76.4	7/8	558	568	563	90.7	520

During the week ending January 8, the following fields were seeded: C-36, Peruvian alfalfa, broadcast; C-39, Peruvian alfalfa in rows; D-35, Abruzzes rye; D-36, Appler's Rust Proof oats; and

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma (continued).

D-37 to 40, Macaroni wheat.

Sweet potatoes were harvested from A-10₃, and yielded at the rate of 10.3 tons per acre.

An interval-of-irrigation test with Durango cotton conducted during the season of 1914 was repeated in 1915, mainly for the purpose of studying the plant requirements for water when maturing cotton. Soil on plat A-10₂ that is too sandy for ideal cotton soil was selected in order that frequent irrigations might be applied and that depression from drought might be more clearly detected. The behavior observed was very similar to the behavior of cotton under these conditions in 1914. A very marked response in yield was given to frequent irrigations while the depressions in yields occasioned by insufficient waterings seemed not to be a matter of the period of low moisture content of the soil, but occurred by slight checks from drought in as serious a degree. Cotton irrigated every two weeks yielded no more than that irrigated every three weeks, while the field irrigated once each week gave an increased yield of .44 bale per acre. The yields are shown below:

Period of Irrigations (Days)	YIELD PER ACRE.	
	Pounds Seed Cotton	Bales (1650 lbs. of seed cotton)
21	1401	.85
14	1363	.825
7	2132	1.29

Truckee-Carson.

During the two weeks ending January 8, the leveling of land south of field B, hauling of manure and painting of buildings was continued without interruption.

An experiment of growing wheat seedlings in alkali solutions was completed December 18. Two experiments were conducted. In one, the seedlings were grown in bottles of distilled water to which various amounts of sodium carbonate had been added; and in the other, the seedlings were grown in water containing fertilizer ingredients as well as the various percentages of sodium carbonate. The re-

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Truckee-Carson (continued).

sults are reported below:

Experiment No. 1, the growth of wheat seedlings in sodium carbonate solutions of various strengths:- In this series the wheat seedlings were grown in solutions of sodium carbonate ranging in strength from 0% to 2%. The anhydrous salt was weighed and added to each bottle to make the percentage desired. Five seedling plants, previously germinated in water, were grown in each bottle. The growth was determined by measuring the height of each plant in millimeters every two days.

Table I shows the average growth of the plants in each bottle, the percentage of carbonate added, and the kind and amount of salts recovered in the solutions at the completion of the experiment. The growth of the plants was greatly reduced in the solutions to which 0.1% Na_2CO_3 or a larger amount had been added. In a soil containing 20% moisture 0.1% Na_2CO_3 in the solution would be equivalent to 0.02% in the soil. It will be noticed that a part of the sodium carbonate was changed in each solution to either bicarbonate or hydroxid.

The reduction in growth of the plants as the salt was increased, was not always regular.

Bottle No.	S O L U T I O N	Height of plants		Avg. growth of plants m m	Salts recovered from solutions at end of experiment			Total Na_2CO_3 equivalent	Theoretical amount Na_2CO_3
		Beginning of Expt. m m	End of Expt. m m		Na_2CO_3	NaHCO_3	NaOH		
1	H_2O	40	88	48	.000	.000	.000	.000	.000
2	" + .05% Na_2CO_3	34	81	47	.021	.052	.000	.053	.050
3	" + .10% "	41	66	25	.051	.074	.000	.097	.100
4	" + .15% "	37	71	34	.096	.065	.000	.136	.150
5	" + .20% "	37	59	22	.160	.027	.000	.177	.200
6	" + .30% "	35	56	21	.263	.000	.005	.270	.300
7	" + .40% "	46	63	17	.326	.000	.040	.379	.400
8	" + .60% "	41	61	20	.484	.000	.070	.554	.600
9	" + .80% "	38	51	13	.589	.000	.130	.761	.800
10	" + 1.00% "	38	50	12	.862	.058	.000	.898	1.000
11	" + 1.50% "	40	45	5	1.183	.000	.400	1.713	1.500
12	" + 2.00% "	36	39	3	1.470	.000	.550	2.200	2.000

Experiment No. 2, the growth of wheat seedlings in solutions containing fertilizer ingredients and various amounts of sodium carbonate:- In this series, the fertilizer ingredients were .72% KNO_3 ,

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Truckee-Carson (continued).

.48% K_2SO_4 , and .4% $CaH_4(PO_4)_2$, except that bottle #1 was distilled water. The percentage of sodium carbonate ranged from 0% in bottles 1 and 2 to 2.5% in bottle 13. This experiment was conducted in duplicate with 5 plants in each bottle. Measurements were made as in experiment No. 1. The final measurements were made at the end of a 25-day period.

Table 2 shows the average growth of the plants in each bottle, the percentage of carbonate added, and the kind and amount of salts recovered in the solution at the completion of the experiment. The growth of the plants was greatly reduced by a percentage of carbonates as low as 0.1%. The experiment would have been better if 2 or 3 bottles containing less than 0.1% had been used.

Less total salts were recovered in this experiment than in Experiment 1, some of the carbonates apparently being absorbed by the fertilizer salts. The reduction in growth of the plants as the carbonate was increased was in this experiment quite regular.

Bottle No.	SOLUTION	Height of plants		Avg. growth of plants mm	Salts recovered from solutions at end of experiment			Total Na_2CO_3 equivalent	Theoretical amount Na_2CO_3
		Beginning of Expt. mm	End of Expt. mm		Na_2CO_3 %	$NaHCO_3$ %	$NaOH$ %		
1	Distilled water	29	82	53	.000	.000	.000	.000	.000
2	Fert. H_2O	33	138	105	.000	.000	.000	.000	.000
3	" "4.1% Na_2CO_3	28	109	81	.000	.066	.000	.041	.100
4	" "+.2% "	31	59	28	.017	.139	.000	.103	.200
5	" "+.3% "	30	47	17	.100	.139	.000	.186	.300
6	" "+.4% "	33	46	13	.202	.111	.000	.270	.400
7	" "+.6% "	31	39	8	.349	.153	.000	.443	.600
8	" "+.8% "	28	36	8	.526	.109	.000	.593	.800
9	" "+1.0% "	32	36	4	.673	.000	.222	.967	1.000
10	" "+1.3% "	29	32	3	1.050	.000	.020	1.077	1.300
11	" "+1.6% "	30	32	2	1.295	.017	.000	1.305	1.600
12	" "+2.0% "	29	29	0	1.680	.000	.000	1.680	2.000
13	" "+2.5% "	28	28	0	2.078	.000	.045	2.138	2.500

During the week ending January 1, the maximum temperature was 48; minimum temperature -1; precipitation, .247 inch.

During the week ending January 8, the maximum temperature was 49; minimum temperature, 8; precipitation, .32 inch.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Tieton.

During the week ending January 8, three farmers called at the office to discuss general dairy problems. One conference was held in regard to farmers' meetings on the project.

Conference at Pullman.

A visit was made to the State College and Experiment Station at Pullman, attending the annual meeting of county agriculturists and conferring with members of the college and extension staffs.

The most interesting topics of discussion at the county agriculturists conference were: farm management; a demonstration of the treatment of contagious abortion; boys' and girls' club work; co-operation with the State Department of Agriculture; crops and pure seed; and cow testing.

Dr. Kalkus, in demonstrating the treatment of contagious abortion of cattle, laid special emphasis on disinfection of stables and of the genital organs of both bulls and cows. A strict observance of all sanitary precautions was also emphasized and the practice of not attempting to breed the cow for at least three months after abortion was recommended. In view of the lack of definite evidence of the benefit of feeding either carbolic acid or methylene blue this practice was not favored, especially with the present high prices of these drugs. Inasmuch as the use of either of these medicines is certainly not detrimental to a proper treatment of a diseased herd it was suggested that owners might use them if they so desired.

Seed inspection, dairy inspection, and the control of animal diseases is handled by the state department of agriculture in this State. Dr. Graves, State Commissioner of Agriculture, outlined the work of his department and explained the staff organization. One of the chief problems of the state department at present is the control of bovine tuberculosis. Testing for tuberculosis is done by the state free of charge and owners of reacting animals are entitled to receive not to exceed \$35 for a reactor when slaughtered under federal inspection or not to exceed \$75 when slaughtered and no evidence of the disease is to be found.

The Washington State Grain Growers met at Pullman during the week. All agriculturists attended that part of their meeting devoted to a discussion of wheat silage. The reported advantages of wheat silage for the dry land farmers of Washington are that it yields from 15 to 20 tons per acre as compared with from 5 to 10 tons

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued).

for corn silage; it is ready to cut in June or July when ordinary grain binders and comparatively cheap labor can be had for handling it; it furnishes succulence during the drought of July and August whereas corn is not obtainable until September. However, there seems to be no reason why farmers who can produce a good corn crop should use wheat for silage.

The home-made stave silo is undoubtedly the cheapest silo for Washington farmers. Good, clean 2" x 6" tamarack or Oregon fir staves are used. These need to be planed on one side and both edges. They may be grooved but grooving is not necessary, and costs about \$2 per M. A silo 10 feet in diameter would require about 70 staves, ungrooved, and about five more if they were grooved. The hoops are usually bought from some company manufacturing them for the patent silo companies. Three-quarter inch hoops are used at the bottom of the silo and one-half inch hoops for the upper half. In some cases ten foot silos have been put up with the hoops five-eighths and one-half inch respectively. The hoops are placed every three feet and cost from \$1.50 to \$2.00 each, including turnbuckles. Report was made of one 10 to 20 ft. silo of which costs were as follows: Lumber, \$16. Eight hoops \$16. The staves were put in place by three men in seven hours. (The cement base was made previously and no roof was made). The cost of another silo, 10 by 30 feet, were as follows: Material (including bolts, twisted wire anchors, nails) \$69. Labor \$20. Oregon fir was used in this case and the staves were planed and grooved.

The Washington Experiment Station has established a sub-station in Okanagon county to study the problem of hairless pigs and related phenomena. Thirty animals (goats, sheep and pigs) are being used. They are being fed differently with local feeds, imported feeds, local water, local water boiled, and imported water. Animals having given birth to affected young, and normal animals, are being used. Check lots are employed in each group. Sheep and goats are used in place of cattle and horses because they are subject to the same trouble and are much cheaper to secure and to care for. A solution of the hairless pig problem will be of great benefit to the hog industry on the Tieton Project, and of considerable benefit to dairymen as well as to farmers who wish to breed their mares. Goitre in calves and weakness of the joints of new born colts seem to have the same cause as the hairless condition of pigs.

There are now two men of the U. S. Dairy Division cooperating with the State College, organizing cow testing associations and conducting silo campaigns in this state. Five associations are in operation and two more are expected to begin work soon. The highest record made by a cow on test in an association in the month of November

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Field Notes.

Tieton (continued).

was 71 lbs. of butter fat. Several made over 50 lbs. during the same month and a larger number produced over 40 lbs. Grade cows have made the best productions in the associations thus far. The number of pure bred animals so tested is comparatively small and of course the best producing purebreds are tested officially.

The local price paid for butter fat dropped from 30 cents to 27 cents on December 27th. It rose from 27 to 31 cents on January 10th. The fall in price was explained, locally, by the appearance of a car load of butter from California on the Seattle market.

Farmers on the Project are selling their hogs as rapidly as possible. Many farms have bulletin boards at their gates and pigs, shoats, and some sows are advertized for sale in this manner. Farmers who have some grain on hand, and also some confidence in the market, are holding their shoats as cheaply as possible in expectation of a rise possibly in March or April. The present heavy snowfall and the severe weather for the lower parts of the Project especially are good arguments for better housing. It is sometimes rather difficult to talk new hog houses to a farmer who may not believe in looking beyond the present price for hogs, -from 5 to 5-1/4 cents.

The following is a summary of the work for the week ending January 15: calls for assistance and information, 9; visits to farms, 6; office conferences, 10; follow-up visits, 1.

One lot of pigs was weighed for a feeding trial. Due to the present low price of hogs, the cooperator is holding his pigs over the winter as cheaply as possible. To this end he is using a mixture of alfalfa hay, some corn silage, rolled barley and skim milk. The trial will continue for about 30 days.

In cooperation with the state department of agriculture, one herd of 47 cows and young stock was tested for tuberculosis. The intradermal test was used, hence two visits to the farm were necessary. No reactors were found.

The circular letter on cooperative grazing recently sent out from the Washington office is bringing results. One community association had discussed the matter or organization very favorably and has asked for a talk on the subject at their next meeting. Several individual requests have come in for more information or to discuss the material included in the letter.

The price of hogs has risen 25 to 50 cents per cwt. during the past two weeks, the market at present giving from \$5.50 to \$6 per

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes.

Tieton (continued).

cwt. Butter fat is still 31 cents per lb. Alfalfa hay is gradually rising, a few sales having been reported at from \$12 to \$15 per ton in the stack. This hay is used principally for city trade locally. The average price for the season is placed at \$7.50 in the stack, the range having been from \$8 to \$11 per ton, baled, for the major part of the crop. Baling costs \$2 per ton and hauling is averaged at \$1 per ton.

No boys' and girls' clubs are definitely organized as yet but a number of inquiries have come into the office in regard to formation of clubs. The interest includes sheep, pig, cow testing and heifer clubs.

The reading room in connection with this office has been used by a number of farmers during the past week. About 25 bulletins have been distributed, principally those of the Washington State Station.

Sunnyside Cooperative Creamery.

Mr. Lashbrook, of the U. S. Dairy Division and the State College, spent several days on the Sunnyside Project last week. He gives the following figures in regard to the cooperative creamery at Sunnyside. Average price paid for butter fat in 1915, 23 cents. Average price received for butter, 26 cents. Number of cows owned by patrons, about 700. Average cost of operating the creamery, about \$500 per month. This high cost is evidently partially due to poor management for at least a part of the season. A recent change in the management is giving better results. Property owned by the company is invoiced at approximately \$1800, not including cans used for collecting cream. The overrun has averaged 22.3 per cent. The overrun allowed by the State is 22.5 per cent. The creamery made about 2000 lbs. of butter during December. Most of the butter is sold through a commission house in Spokane and a part of it has been handled by the Hazelwood Company, a Spokane dairy company having its own manufacturing and selling system in Spokane and specializing in quality butter. The Sunnyside creamery, being the first cooperative creamery in that section, has met with very severe competition from local private creameries and collecting agencies. It was first organized by a promoter who left the organization in a rather bad situation. In spite of this handicap it has reduced its indebtedness by \$1100 during the past year and is on a better basis for 1916.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte.

During the week ending December 25, another case of hog cholera was found northeast of Bayard. The owner of the herd thought the trouble due to eating too much new corn and was slow in reporting. Fourteen hogs out of a herd of 37 had died when the herd was visited, and most of the herd showed signs of sickness. On account of the advanced stage of the disease it was not thought advisable to vaccinate. However, a herd of 75 shoats just across the road were vaccinated though none of that herd showed signs of sickness.

During the year 1915, 23 outbreaks of cholera were reported in the valley. Only three of these were on the project proper, 20 cases being on farms adjacent to the Government-irrigated land. During the last 6 months of 1914, 78 cholera outbreaks were reported. During the entire year of 1915, 1001 hogs were vaccinated as compared with 4887 during the last 6 months of 1914.

A farmers' cooperative store has recently been started in Mitchell. This is the third such store to be started in the valley during 1915. Only members of the Farmers' Union can become stock holders, but there is no restriction as to patronage. Shares are sold for \$10 each. All business is strictly cash. Only material which can be sold wholesale will be handled by the store, such as coal, corn, millfeeds, and flour. They also expect to ship live stock, especially hogs.

A winter shed for stock hogs was planned during the week.

Trouble was again reported in the herd of Mr. Emery, at Minatare. One 150-pound shoat showed marked signs of sickness. We were unable to diagnose the trouble but it is thought that the trouble was due to eating too much copperas which was given in the drinking water. A report received from the herd the last of the week says that since the copperas has been removed the hogs are all right.

During the week ending January 8, a farmer was assisted in figuring out a fattening ration for 300 hogs. The ration consists of the following, which will be fed in separate self feeders: shelled corn, ground barley, alfalfa meal, tankage, and a mineral mixture consisting of slacked coal, air slacked lime, salt, sulphur, and copperas.

One herd of 150 hogs were treated for lice. At the present time it is hard to get crude oil in the valley with which to treat hogs for lice. As this is thought to be the best for destroying lice, the matter of handling this product has been taken up with the various farmers' union stores in the valley. They say they have numerous calls for it, but have never handled it thus far, but that they will be glad to if they can find a satisfactory purchasing point.

The last three days have been spent traveling over the project in company with Mr. Ashby, of the Office of Public Roads and Rural

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte (continued).

Engineering, for the purpose of inspecting a number of the swine barns, feeding floors, watering devices, etc. Thirteen farms were visited with Mr. Ashby, and thirteen different styles of hog houses were inspected.

The first period of the shoat feeding demonstration which was started on the farm of Mr. Young about 4 weeks ago, was brought to a close during the week. In this demonstration, one lot of 22 shoats received a ration of ground barley, skim milk, meat meal, and alfalfa hay. Another lot of 23 shoats received the same ration, except that they did not receive meat meal. Mr. Young was advised not to feed over one part of meat meal to 12 of grain, but he actually fed one part of meat meal to 6.6 parts grain. However, when fed on this basis the shoats paid \$4.85 per cwt. for the meat meal. The lot receiving the meat meal paid more for the other feeds eaten than did the lot not receiving meat meal. The demonstration will be continued except that the ground barley will be replaced by corn. The grain ration will be increased and the meat meal decreased to 1 to 12.

Minidoka.

During the week ending January 8, 32 calls for information and visits were received. Sixteen farmers called at the office for information upon some specific line. Seven farms were visited. One farmer was taught how to make the Babcock test. The Schultz Brothers who live west of Burley were assisted in buying a registered Percheron stallion colt from the farm of Mr. E. S. Hardin, of Heyburn.

Interest in dairying is better than it has been since last winter. The unfair competition against the Accquia Cheese Factory has ceased, due mostly to the loyalty of the patrons. Many of the patrons believe, however, that the investigation of the conditions by this office and the statement to the Dairy and Food Commissioner was the real cause of the reduction of butter fat to a normal price in that section. A big dairy meeting is being planned for Rupert on January 15. At this time the problem of the Rupert Cooperative Creamery will be considered.

Butter fat is now 26 cents; hogs are \$4.75 to \$5.00; lambs, \$6.50 to \$7.00; and steers, \$5.00 to \$5.50. Hay at Rupert is \$6.75; at Burley, \$8.00. Wheat is \$1.50; oats, \$1.05; and barley, \$1.00 per cwt.

The first part of the history of the American people is the story of the early years of the nation. It is a story of struggle and sacrifice, of the men who fought for the principles of liberty and justice for all. It is a story of the men who built the nation from a wilderness of ignorance and superstition into a land of knowledge and progress. It is a story of the men who gave the American people a government of their own making, a government that has stood the test of time and has been the source of strength and inspiration to the people of the world.

The second part of the history of the American people is the story of the growth and development of the nation. It is a story of the men who have made the American people a great and powerful nation, a nation that has been the envy of the world. It is a story of the men who have built the American people a land of opportunity and progress, a land where every man has the chance to make his own way in the world. It is a story of the men who have given the American people a government that is the envy of the world, a government that has been the source of strength and inspiration to the people of the world.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Umcompahgre.

On Monday, of the week ending January 15, a trip was made to Delta, to confer with the Forest Service officials regarding the grazing organization plan for the stockmen on the Project. On account of the protective limit being 125 head on the Umcompahgre Forest, many herds of this size are kept; as a result, the smaller herds are crowded out to a great extent.

While at Delta, Dr. Miller was conferred with regarding the importing of the dairy cows for the Delta business men. An effort is being made to locate a number of pure bred Holsteins for this enterprise.

Two visits have been made to the creamery during the week. The greatest need at the present time is to find a market for the surplus butter. It is planned to find a market at Denver for this product. The present owners have never attempted to get outside with their product, except several shipments to Chicago last summer. These shipments were made at a loss, as the product was below standard and the distance so great that the transportation cost was very high. With the recent improvement in the quality of the butter, an attempt will be made to work up a larger trade in the towns on the western slope.

One trial in hog feeding was started during the week. There are 12 pigs included in the trial, with an average weight of 95 lbs. These are on a short feeding period. The feeds used are ground wheat and oats, cooked potatoes, and alfalfa hay. The object is to obtain the costs of gains and the value of alfalfa hay with heavy grain feeding.

One car of hogs, belonging to four farmers, was sent to the Denver market. The car contained 83 head averaging 214 lbs. The price received was \$6.35 per cwt. at Denver. The cost of shipping was 70 cents a cwt.

Four farms were visited during the week. Three of these visits were made with Mr. Ashby who arrived on the Project Friday to investigate the methods of housing hogs on the Project.

Part of the time during the week was spent in getting the names of water users and their addresses for use in sending out circular letters.

The price of butter fat dropped during the week to 25 cents.

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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Scottsbluff.

The weather during the fore part of the week ending January 22 was extremely cold, but moderated towards the end of the week.

The sugar factory officials are very much alarmed over the beet seed situation. The agriculturist stated that at the present time indications are that only one-half enough seed will be available for the present year. The management still hopes that something may turn up within the next week, so that enough seed will be in sight for a full acreage. If, however, nothing materializes within the next week, it will be too late to secure sufficient seed for this year's crop.

The construction of the sugar factory at Gering is progressing very rapidly. Considerable of the steel frame work has been erected.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Minidoka.

Four days of the week ending January 15 were spent at Boise in conference with Agricultural College, State and Government officials and dairymen and swine growers in regard to the problems of the dairy and swine industries.

Because of the low prices that have prevailed for over a year there has been a gradual decrease in the number of hogs kept on the farms and in the interest in swine growing on the Project. Yet the industry as a whole has not been seriously threatened as the best swine growers have all realized that present conditions are only temporary. A number of others who formerly paid no attention to selection or the care of their hogs have begun to study the problem as never before. A number of farms have been overstocked beyond the limits of profitable production at almost any price. One of the greatest tendencies of the settlers is to decide that some one line of farming is the most profitable of all and then devote all their energies along this line, thus making the farming system unbalanced. The present tendency is towards the production of clover and alfalfa seed.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka (continued).

On Saturday a dairy meeting was held at the Rupert High School Building. Mr. Glover, Associate Editor of Hoard's Dairyman, and Mr. Kunze, President of the State Dairymen's Association, addressed the meeting. The attendance was 83 and included all the best dairymen of the North Side. The interest was very good, so many questions being asked that neither speaker could finish his lecture.

Huntley.

Very cold weather prevailed during the week ending January 8, the minimum temperature being 27 degrees below.

A meeting of the Project Dairy Association was held on Friday. Only ten farmers were present. This association was organized nearly three years ago for the purpose of importing dairy stock and securing credit for this purpose. It has served this but no other purpose, and it will cease to exist on May 24, 1916. A short talk was made to the members present on the value of organized and united effort. It was suggested that a new dairy association be formed to have as members all who are interested in dairying on the project and to have for its purpose the promotion of the dairy industry on the Project. No action was taken on the suggestion.

A short talk on silos was also made at the close of the meeting.

Eight farms were visited during the week.

Efforts to induce some of our dairy men who have apparently sterile cows to treat them with a disinfectant is meeting with some success. The treatment prescribed is daily irrigation of the cow's womb with a $\frac{1}{2}\%$ solution of liquor cresolis for a period of 21 days before breeding. This advice is being followed, in part at least, by seven project dairymen. Reports from two of these men indicate that the treatment has been successful.

The promised financial support of a cheese factory at Pompey's Pillar has failed to materialize. Perhaps the present high price of butter fat is partly responsible for this. Next summer when butter fat is worth 22¢ per pound will probably be a better time to talk to our farmers about the advantages of a cheese factory.

29 January, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

Extremely cold weather prevailed throughout the week ending January 15, the lowest temperature being 39 degrees below zero.

Three farmers' meetings were held on the project during the week; at Huntley on Thursday; at Worden on Friday; and on Saturday at Pompey's Pillar. Six farmers attended the meeting at Huntley; thirty were present at Worden; and ten at Pompey's Pillar. The extremely cold weather was no doubt responsible for the small attendance.

Dr. Hartman, of the Montana State College, informally discussed various live stock and veterinary questions, most of which were asked by the farmers present.

Mr. Christopher discussed "Housing and Feeding of Swine" at each meeting. A model of a standard type of hog house was shown at each meeting, and different methods of housing swine were discussed. Data obtained from recent swine feeding demonstrations were also discussed. Special emphasis was placed on the importance of adequate housing facilities at farrowing time in order to save the young pigs and the necessity of utilizing waste material and cheaply-grown feed in order to make swine production profitable at present prices.

Shoshone.

During the week ending January 8, 10 farm visits were made and 11 calls were received at the office.

Plans were discussed for building granary and grinding room for storing and grinding feed for hogs. The plan decided on was to have the grain bin over the engine room, the floor of the bin slanting so that the lower edge of the floor would be of the proper height so that the grain could be run by gravity from the bin into the mill. Over the mill will be a small storage bin for ground feed. The ground feed will be run into the storage bin from the mill by an elevator run by the engine. The chute from the elevator will be arranged so that the ground feed can be run directly into the wagon, or into the storage bin, from which it could be run by gravity into the wagon. It will be necessary for a large part of the ground feed to be run into the wagon because the purpose is to have the self feeders for the grain in the alfalfa pasture much of the time.

29 January, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka.

The entire week ending January 22, with the exception of one day spent in answering requests for visits, was spent in arranging for institutes and district meetings and working on the community range association.

While there has been considerable dissatisfaction with the swine growing industry, practically all of the survey men and district leaders are in no way discouraged and are anxious to help hold meetings at central points. This is an indication of the type of men serving as officers of the Hog Cholera Control Organization, and in a way is an explanation of the efficient work of the organization in handling the hog cholera situation.

As a result of the circular letter sent out from the Washington office, there is much interest in a cooperative range association. Calls and visits in response to this letter have been numerous. From present indications it will be possible to put a community herd in the Minidoka National Forest in the spring. A movement of this kind was started two years ago but failed through lack of proper efforts in working out the details.

The price of hogs is becoming better; \$5.75 was paid for those shipped out this week. On Friday the price advanced to \$6.00 and on Saturday to \$6.10.

ANTHRAX
Publication on

Because of the occasional occurrence of anthrax on several of the projects where we are working, the field men working in live stock industries will be interested in Department Bulletin No. 340, "Experiments in Vaccination Against Anthrax." This bulletin has recently been issued by the Bureau of Animal Industry. Copies have been sent to the field men doing work in live stock industries.

29 January, 1916.

SKILLED LABOR,
Employment of

Following is the text of a memorandum to heads of offices, dated January 24, and signed by the Chief of the Bureau. The requirements of this memorandum should be observed in the employment of all skilled labor.

"It is requested that you call to the attention of your men having charge of field stations the following extract from a letter from the Civil Service Commission, dated March 3, 1915, which was embodied in a memorandum from this office of March 10, 1915, which relates to the employment of temporary mechanics at field stations:

'The Department is respectfully advised that the district secretaries have been informed of the field stations and the names of the superintendents, and requested to furnish eligibles for temporary appointments whenever the needs of the service appear to require. If the Commission has a local secretary at any of the points named, the lists will be furnished him and the superintendent will be advised to call upon such secretary for eligibles when he has need of the services of temporary mechanics. At places where there is no local secretary and lists are furnished, they will be furnished direct to the Superintendent. If the Superintendent has not been furnished a list of eligibles direct, or if he has not been advised as to whom to call upon for such list, and it becomes necessary to make temporary appointments, they may be made without reference to the list of eligibles, but must be reported by the superintendents at once by letter, with a full statement as to the needs of the service.

The Commission respectfully requests that when changes occur in the location of field station, by the discontinuance of old stations or the addition of new ones, the Department advise the district secretary, or district secretaries, of such change.'

We have lately received quite a number of communications from civil service district secretaries to the effect that our field station superintendents have not reported to them the temporary employment of mechanics at field stations. In looking up such cases it has been noted that the employment of temporary mechanics which has not been reported to the district secretaries has been under letters of authorization, rather than by appointment. However, the employment of temporary mechanics for short periods of time under letters of authorization should be reported promptly by superintendents of field stations to the civil service district secretaries, as well as temporary employment of mechanics under appointment."

Chapter 1

Introduction

The purpose of this chapter is to provide a general overview of the subject matter. It will discuss the importance of the topic and the scope of the study.

The first part of the chapter will focus on the historical background of the subject. This will include a discussion of the early developments and the evolution of the field over time.

The second part of the chapter will discuss the current state of the field. This will include a review of the most recent research and the current debates within the community. The third part of the chapter will discuss the future of the field. This will include a discussion of the challenges that the field faces and the potential for future research.

The final part of the chapter will provide a summary of the key points discussed in the chapter. This will include a discussion of the main findings of the research and the conclusions that can be drawn from the study.

5 February, 1916.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Truckee-Carson.

Little general farm work was done during the two weeks ending January 22 on account of storms and freezing weather. The men were occupied with work about the buildings.

A total of 10 inches of snow fell on the 17th and 18th, followed by extremely cold weather for this section. The minimum temperature on the 20th was -22, making a new record, the coldest weather recorded during the previous 10 years being -15. Some of the pipes of the water system were frozen and broken.

Eight of the hogs used in the pasture experiment during the summer were sold on the 22nd at $5\frac{1}{2}$ cents per pound live weight.

The climatological data for the period is given below:

	Week Ending January 15.	Week Ending January 22.
Maximum temperature.....	43	39
Minimum temperature.....	4	-22
Evaporation.....	.248	Frozen
Precipitation.....	.27	.87
Average Wind Velocity.....	0.63	2.3

San Antonio.

The coldest weather of the winter came during the week ending January 15, the minimum temperature recorded at the farm being 21. The maximum temperature for the week was 83, and the greatest daily range was 35. The total precipitation amounted to 0.02 inch. The cold weather, which came after a long period of warm weather, during which time the winter crops made succulent growth, did some damage to the field peas. The frost did not kill the plants entirely, but the growing tips were killed back to two or three inches on some plants, and the effect will be that of delaying the growth of the crop for ten days or more.

Hauling of manure was continued; A5-5 and A6-18 were manured. This completed the work of manuring on the rotation plats for the season. Some time was spent in fence building. The work of filling the pond on field B3 was started and will be continued during weather too cold and unfavorable for other outside work.

During the week ending January 22, the maximum temperature was 74, minimum temperature, 23, and greatest daily range, 35. Wet

5 February, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued).

weather prevailed a considerable portion of the week, rain falling on four days. The total precipitation was 1.62 inches.

The field peas were injured much more severely by the freeze on January 13, when the minimum temperature was 21, than was at first supposed. A large number of the plants were apparently killed to the ground and possibly killed outright. It is yet too early to determine whether growth will again start up from the roots.

In the variety test of field peas, all varieties suffered more or less from the freeze except the Grey Winter, which apparently was uninjured. The least injured of the remaining varieties was the Kaiser. The Golden Vine variety suffered severely, although a few others seem to have been damaged somewhat more. Approximately half of the horse bean plants seem to have been killed.

Progress in Winter Pasturing Experiments.

About a month has elapsed since the inauguration of the pig and steer pasturing experiments. The results obtained are beginning to indicate something as to the value of the pastures being used.

Two yearling steers are being pastured on winter oats, one and a half acres being used for the pasture. This is divided into three pastures of a half-acre each, the different pastures being grazed in rotation. At present (January 24) the steers are in the last pasture, having eaten off the growth in the first two. They have been in this pasture two weeks but it is expected that there will be sufficient feed to last another week, when they will again be put on pasture No. 1.

The steers were first turned into the pasture on Dec. 20 and have been pastured continuously since that time. In the following table are shown initial weights of each steer and the weights at weekly intervals since the experiment was started:

Steer No.	Weights (Lbs.)						Gains (Lbs.)		
	Dec. 21	Dec. 28	Jan. 4	Jan. 11	Jan. 18	Jan. 24	Total	No. Days	Av. Daily
1	444	460	484	490	500	522	78	34	2.3
2	499	522	536	546	564	590	91	34	2.7

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5 February, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued).

It is seen that one steer made an average daily gain of 2.3 pounds per day while the other made an average daily gain of 2.7 pounds. The steers have received nothing in addition to pasture and such gains are very satisfactory.

Conditions during the fall and early winter have been very unfavorable, due to drought, yet the $1\frac{1}{2}$ acres have furnished sufficient pasturage to date and the indications, since the rain of last week and the approach of spring weather, are that the pasturage furnished will be more than enough to supply the two animals.

Oats and field peas are being used as winter pasture crops for hogs. Eight pigs are being used. The pigs are of mixed breeding, but apparently the dominating breed is Duroc Jersey. Due to the scarcity of hogs in the community, it was not possible to obtain pure breeds or pigs of the best uniformity. The average weight of the pigs at the time of starting the experiment was about 35 pounds. The pigs were turned on one-quarter-acre plat of oats on Dec. 18. The following table shows the individual weights of the pigs at the beginning of the experiment and at weekly intervals thereafter

Steer No.	Weights (Lbs.)						Gains (Lbs.)		
	Dec. 20	Dec. 27	Jan. 3	Jan. 10	Jan. 17	Jan. 24	Total	No. Days	Av. daily
1	27.5	31.0	34.5	36.0	33.5	34.5	7.0	35	0.2
2	38.5	42.5	46.5	47.0	47.5	45.0	6.5	35	0.19
3	35.0	38.0	40.0	42.0	42.5	41.0	6.0	35	0.17
4	34.5	37.5	41.5	43.5	44.0	44.5	10.0	35	0.29
5	41.0	46.0	48.0	51.5	52.0	57.0	16.0	35	0.46
6	39.0	43.5	47.0	46.5	46.5	46.0	7.0	35	0.2
7	29.0	32.0	35.5	37.5	39.0	41.0	12.0	35	0.34
8	33.5	37.5	40.0	42.5	43.0	44.0	10.5	35	0.3
Av.	34.8	38.5	41.6	43.3	43.5	44.1	9.38	35	0.27

5 February, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued).

It will be noted that the gains made have been small. The pigs have been fed a 2% ration of ground milo which is made into a thick slop at feeding time. A total of 230 pounds of milo, which is at present worth \$0.92 per cwt. on the local market, has been fed to date.

The pigs were on oat pasture from December 20 to January 17, during which time they grazed off 1/2 acre. On January 17 they were transferred to field pea pasture. The peas, however, had been injured by frost and did not make pasture of a very good quality. While the oats on both plats were grazed rather close at the time of removing the pigs, there seemed to be sufficient pasturage up to the time of their removal.

The low gains cannot be accounted for unless it is due to too low a grain ration. Some of the pigs also have some mange which may account in part for the small gains made. The pigs will be treated for the mange as soon as possible.

DEMONSTRATION ON RECLAMATION PROJECTS.

FIELD NOTES.

Shoshone.

During the week ending January 15, a demonstration was made of a method of disinfecting an aborting cow. Ten calls were received at the office.

A movement is being started for a county agent. The matter is being agitated by representatives of the Cody Commercial Club, who called at this office during the week. The work of a county agent was discussed at a meeting of the water users on the Project.

The Performance of a Pure Bred Holstein Herd..

The following figures were obtained from Mr. J. L. Werts, a Shoshone project farmer, regarding the performance of 6 of his pure bred Holstein cows during the year 1915. These cows were fed chiefly alfalfa hay alone; but, for a short time in the fall of 1915, they were fed beet tops night and morning, and for about 5 weeks they were pastured on beet tops. Mr. Werts estimates that his cows consumed approximately 1300 pounds of alfalfa hay each per month and that the feed cost per cow for the year amounted to about \$50. The average test and production of milk and butterfat are shown in the table below:

Cow	Age, Years	Freshened	Record for 1915		
			Average Test	Milk, Lbs.	Butterfat, Lbs.
1	8	July, 1915	3.8	10,108	384
2	6	Dec., 1914	3.4	14,128	480
3	7	May, 1915	4.1	9,823	403
4	5	Nov., 1914	3.8	14,363	546
5	5	May, 1915	3.4	10,695	364
6	5	Feb., 1915	3.5	6,563 ₁	230 ₁

₁ Cow sold at end of 170 days.

It should be noted that only 2 of the 6 cows were milked during the entire year, 2 having freshened in May, 1 in July, and 1 having been sold after having been milked for 170 days.

During the year \$631.85 was received for butterfat produced by these cows. The owner estimates that this, together with the value of skim milk at 25 cents per cwt., the value of the calves, and the manure produced, makes a total gross revenue of \$1245.38. Deducting from this amount \$275.00, estimated as the total feed cost for the herd, leaves \$970.38, the return above the cost of feed. This herd is one of the most profitable on the project.

5 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

During the week ending January 22, two milk testing demonstrations were given before the milk testing clubs. Twenty-seven men called at the office.

Considerable interest is being shown in grass pastures, several inquiries having been received about pasture grass seed.

Huntley.

On account of the extremely cold weather, only one visit was made during the week ending January 22. This was in response to a request from L. E. Day for assistance in keeping records on his cows. Mr. Day's herd is the seventeenth herd that has been put under test since April 1, 1915.

The plan of this testing work is to assist the farmer in keeping his records for one year and then encourage him to do the work himself. Butter fat tests are made every month when possible. During the past month, on account of the extremely cold weather, several of those keeping records failed to secure samples for testing and this will very likely be the case this month. However, an average fat test can be used where the monthly test is absent without very seriously affecting the record, so long as the weights are taken regularly.

The last two days of the week were spent at Bozeman in attendance at a conference of county agents and others interested in agricultural extension. Speeches were made by various heads of departments of the agricultural college and by each county agent present. There was some round table discussion of actual problems met by the agent in the field. The greatest good was derived from this part of the conference.

Uncompahgre.

Monday and Tuesday of the week ending January 22 was spent with Mr. Ashby in visiting farms and discussing plans relative to the hog houses used on the Project. Four farms were visited in this connection. One of the visits was to Mr. Nairne's farm, where hogs are butchered and cured for the local trade. Each of the farmers visited is using a different type of hog house. Most of the houses used at present are merely straw sheds.

A trip was made to Denver to assist in the selection of pure bred Duroc Jersey hogs for breeding purposes. Two sows and one boar

5 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

were selected. The sows are from the herd of Mr. Crows, of Nebraska. The boar is from the herd at the Colorado Agricultural College. All are of good type. The sows were purchased for \$50 and \$75, and the boar for \$40.

Some time in Denver was spent in getting in touch with breeders of pure bred cattle and hogs, which were exhibited at the stock show, and in looking up a market for the surplus butter made at the Montrose Creamery.

The various retail and wholesale houses in Denver were visited with Mr. Brown of the Montrose Creamery. The Food Commissioner of the State was consulted in regard to dairy laws of Colorado. The outlook for a market in Denver for small creamery output is not encouraging. The market is largely controlled by the larger plants. There are some 105 brands of butter being handled by Denver firms. Most of the commission firms do not care to handle creamery butter, and are buying the country butter from the stores and turning it over to the process butter people. This brings the merchants 18¢ per pound and is purchased from the farmers at 25¢ in trade. The prospects for a better local market for butter are promising.

The local creamery is paying for cream according to grade. Two grades are being received, there being 2¢ different in price. At the present time the surplus is sold to the Pueblo Creamery in the form of cream.

The weather has been warmer during the week and the snow has nearly all gone.

Tieton.

During the week ending January 22, 11 office conferences were had with farmers; 21 farms were visited, 12 to test milk, 2 in answer to calls for assistance, 1 to follow up a previous answer to a call, and 6 to make final arrangements for farmers' meetings in co-operation with the state college extension staff. Two meetings were attended; one an afternoon annual meeting of the Tieton Cooperative Saw Mill Company and the other a bi-weekly meeting of the Cottonwood Neighbors' Club. Home-made silos were discussed at the latter meeting, the attendance at which was 31.

The following prices prevailed on the North Yakima Produce Market on January 20:

Butter fat per pound.....	31¢
Ranch butter per pound.....	27½¢
Hogs, grain fed 165 to 200 lbs., per cwt.....	\$6.75
Hogs, grain fed, heavy, per cwt.....	\$4.50@4.75
Spring lambs, per cwt.....	\$6.75
Potatoes, per ton.....	\$22@24
Alfalfa hay, baled, per ton.....	\$15@18

5 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton(continued).

Mr. Alexander, with whom milk and feed records have been kept since July 1, 1915, has sold three cows whose records showed them to be comparatively unprofitable. Two good grade Holstein heifers have been purchased to take the places of those sold. The three cows sold for \$166 at the North Yakima Stock Yards.

Crop and Live Stock Statistics, 1915.

According to the U. S. R. S. annual crop census for the year 1915 the total value of the Tieton crops was \$196,170 over that for 1914. The returns are from 18,100 acres, or 54% of the project. There are 995 irrigated farms, averaging 22.1 acres each, and covering 22,000 acres. There are 22,593 acres graded and leveled. The total irrigable area under the project is 34,400 acres. The total value of the crops was \$668,650. The average crop value per acre rose from \$29.60 in 1914 to \$37 in 1915.

Alfalfa is the big crop for the project. The 6,739 acres, averaging 3.4 tons per acre, yielded 23,018 tons. The average farm value for hay was \$7.50 per ton, thus making the value of the crop \$172,635.

The value of live stock has increased from \$264,941 in 1914 to \$315,212 in 1915. Cattle have increased from 1425 to 2312; hogs, from 4990 to 5473; sheep from 71 to 241. Practically all the cattle are kept for dairy purposes. The hogs on hand when the census was taken are chiefly kept for breeding purposes. There are 991 head of young cattle on the project, and 4,097 stock hogs. Mature female cattle are reported from 315 farms. Of these farms, 118 had one cow each; 127 had from 1 to 5 cows; 49 had from 5 to 10 cows; and 21 had more than 10 cows each. The total number of cows was 1174, or an average of about 4 cows each for the 315 farms having mature female cattle. There were 21 pure bred bulls on 21 farms, and 25 pure bred female cattle on 15 farms.

There were 724 mature sows kept for breeding purposes on 245 farms. Of these farms, 93 had one mature sow each; 124 had from 1 to 5 mature sows each; and 28 had more than 5. There were 32 pure bred boars on 27 farms, and 38 pure bred sows on 12 farms.

According to the data reported to the U. S. R. S. patrols, 80 cattle died during the year. It is interesting to note that 44 of these deaths are reported definitely as due to alfalfa bloat. There were two deaths by milk fever, one by pink-eye and no cause was assigned to 33 reported losses. Only 6 hogs are known to have died of cholera during the same year.

5 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Truckee-Carson.

A Truckee-Carson Dairy Herd.

The following is a statement prepared by C. H. Hancock, one of the most successful dairymen on the project. This statement was worked out in sufficient detail to place this man's dairy business on a strict business basis. All items of expense and income are carefully considered, and are shown below:

Investment.

One registered Jersey bull.....	\$125.00
Fifteen grade Jersey cows.....	1500.00
One cream separator.....	85.00
One engine.....	80.00
One pump.....	20.00
Well and pipe.....	75.00
Tank.....	20.00
Corral fence and mangers.....	75.00
Milk house.....	100.00
Milking shed.....	150.00
	<u>\$2230.00</u>

Expenses.

Depreciation and interest on investment are as follows:

Estimated beef value of each cow at the end of ten years is placed at \$42.50. This makes a yearly depreciation of \$5.75 per cow or for 15 cows \$86.25.

Yearly depreciation on bull \$15.00.

Life insurance on 16 head of cattle, \$24.00 per year.

Interest at 8 per cent on investment of \$2230, \$178.40.

Loss in production due to abortion and sterility, \$2.00 per cow per year, \$30.00.

Yearly depreciation of buildings and equipment, 10% of \$600.00, \$60.00.

Value of one-half time of milker to handle 15 cows, \$450.00.

Hay actually eaten by this herd of cows, five tons per animal; hay wasted, one-half ton; total, 88 tons, which at \$5.00 per ton, the value of hay in the stack, equals \$440.00.

Oils and incidentals, \$10.35.

Total expenses, including depreciation, \$1294.00

Income.

Average production of fifteen cows, 312 pounds of butter-fat, at average price of 27¢, \$1263.60.

Fifteen calves worth at birth \$7.00 each, \$105.00.

5 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Truckee-Carson (continued).

Skim milk, 6000 pounds per cow, at 25¢ per hundred, \$225.00

Total income..... \$1593.60

Total expenses.... \$1294.00

Net profit..... \$ 299.60

This report shows a net return of 13.4% on the investment, under actual farming conditions when the costs of labor, interest and depreciation are allowed.

12 February, 1916.

SUGGESTIONS REGARDING SMALL PACKING PLANTS.

The present low prices for hogs have stimulated an interest in the establishment of meat packing plants on several of the Reclamation Projects. The following correspondence between this office and the Office of Markets and Rural Organization will be helpful to any of the field men who are immediately interested in this matter and who are likely to be consulted on the question of local packing plants.

The first letter briefly describes the situation on the Uncompahgre Project, Colorado, with reference to packing plants, and the second suggests some possible methods of improving the conditions there. It should be kept in mind that the successful establishment of a local packing plant is not always an easy matter. In this connection the field men should consult the Department's Weekly News Letter for July 7, 1915.

The correspondence follows:

December 22, 1915.

Mr. Charles J. Brand,

Chief, Office of Markets and Rural Organization.

Dear Mr. Brand:

In accordance with the understanding reached yesterday with you and Mr. Hall, the following statements are submitted in connection with the packing plant situation on the Uncompahgre Reclamation Project, Colorado.

Mr. H. A. Lindgren, an employe of this office stationed at Montrose, Colorado, has informed me that the people of the Uncompahgre Project and the immediately surrounding territory are seriously considering the establishment of a local packing plant at either Montrose or Delta, both of which towns are on the Uncompahgre Project. It appears that the proposal to build a plant is based on the reported fact that the Uncompahgre valley annually imports about \$200,000 worth of packing house products, while locally produced live stock, particularly hogs, are shipped away from the locality. The freight rate on hogs from Project points to Denver is $45\frac{1}{2}$ cents a hundred pounds, in carload lots. The shipping schedules, and other transportation arrangements, are said to be rather unsatisfactory. In view of these conditions, some of the people feel that a packing house could be made to furnish as good a market for the live hogs as is furnished at Denver, and that by doing the packing at home the double freight charge would be saved.

The live stock population of the Uncompahgre Project January 1, 1915, was as follows: Cattle, 5,719 head; Sheep, 14,710 head; Hogs, 4,941 head. These figures cover only that part of the Un-

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Suggestions Regarding Small Packing Plants. (continued)

compahgre valley which is included in the Uncompahgre Reclamation Project. It is likely, I think, that the total live stock population of the Uncompahgre valley would be at least twice that indicated by the above figures. Actual figures on this point are not available. From what information I have been able to secure, it seems likely that the swine population might have increased more than 100 per cent during 1915. If this is the case, it would appear that the swine population of the entire valley is probably in the neighborhood of from 15,000 to 20,000. It would soon increase to perhaps 30,000 or 40,000 if satisfactory marketing conditions prevailed.

There is a small packing plant at Grand Junction, about 75 miles from the Uncompahgre valley district. The Grand Junction plant, which is known as "The Home Meat Packing Plant", is privately owned and operated. Your office probably has information concerning this enterprise. Mr. Lindgren reports that the Grand Junction plant has a capacity of about 50 hogs per week but that it is now handling only about 30 hogs per week. He reports also that the plant, while perhaps paying expenses, does not appear to have been conspicuously successful. He attributes their present condition to over-conservatism on the part of the owners and to a consequent lack of working relationships with the producers on the one hand and the local merchants on the other. There is also a small packing plant owned by a farmer near Montrose. This plant handles only about 400 hogs per year. These hogs are butchered and the meat cured during the winter season.

As soon as Mr. Lindgren wrote me regarding the proposal to build a new plant I sent him a copy of the Weekly Newsletter for July 7, which contains an article on the subject of local packing plants prepared by your office. Mr. Lindgren has since written to learn if we could secure for him any further information. In this connection, I would appreciate it if you would write me as fully as possible relative to local packing plants for situations similar to that in the Uncompahgre valley, as briefly described above. It would be helpful to us if you would advise us, first, regarding the more important general requisites to success in local packing plant enterprises. A discussion of these points would include a description of the chief obstacles to be met by local plants; the amounts of capital necessary for plants of specified sizes; the best method of capitalization, whether cooperative or private, and other similar points.

Second, we would like to have you suggest what, in your opinion, are the most promising methods of procedure in connection with the situation in the Uncompahgre valley; in other words, what do you think is the best lead the swine growers have in the development of a better market for their product, particularly,

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Suggestions Regarding Small Packing Plants. (continued).

regarding a local packing plant? A discussion of this point will naturally include a consideration of the present freight rates on live hogs from the project to Denver, and on packing house products from Denver to the Project, these expenses being considered alongside of the probable expenses of establishing and operating a local packing plant.

Third, I think it would be helpful if you would enumerate the distinctive features of some of the small plants now in successful operation, so that these features can be considered by those who now propose the establishment of a plant on the Uncompahgre Project. It would also be helpful if you would state whether or not there are located within reasonable distances of Montrose any small local plants which could profitably be visited by the people who are now planning to finance a plant on the Project.

Any information you can give us bearing on the present situation in the Uncompahgre valley will be greatly appreciated.

Very truly yours,
(Signed) F. D. Farrell.

December 29, 1915.

Mr. F. D. Farrell,
Bureau of Plant Industry.

Dear Mr. Farrell:

Replying to your letter of December 22, one of our live stock and meat investigators was in Colorado last season making a brief survey of conditions attending the marketing of live stock in the various sections of the State, and at that time he visited at Grand Junction and Delta, Colorado, as well as a number of other points on the Western slope.

In his opinion there are districts on the Western slope which would profitably support well-managed, small packing plants. The district around Montrose, Grand Junction, and Delta was developed as a fruit growing district, and it seems the lack of railroad facilities and high freight rates have complicated their marketing problem, so now the production of live stock and especially hogs, is displacing fruit growing. Even with the high freight rates on live stock to Denver and other eastern points, the ranchers have found it profitable to produce hogs. Up to the present time the amount shipped out has been very small and most of them have been sold either to the local meat dealers or to small packing plants similar to the one known as "The Home Packing Company" at Grand Junction. It is believed that Messrs. Castle and Linderschmidt, who conduct the plant at Grand Junction, are making money out of the enterprise and it is realized as you state that if it were conducted on more business-like principles and by a more aggressive firm, that their financial success would be greater and the production of pork would be considerably en-

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Suggestions Regarding Small Packing Plants. (continued).

couraged.

At Fort Collins, Colorado, there is a small slaughtering plant known as the "Matthews Packing Company", which represents an outlay of between \$8,000 and \$11,000 in equipment and seems admirably adapted to the conditions on the Western slope. I would recommend that your Mr. H. A. Lindgren visit Fort Collins before making any definite recommendations to the settlers on the Uncompahgre Project. It is the practice at Fort Collins to do most of their packing during the winter season so as to decrease the expense of refrigeration, only such slaughtering being done during the summer as is necessary to supply the fresh meat trade. Colorado, because of its large number of cool nights throughout the year, is well adapted to the above methods of packing. Mr. Matthews, who has made a success of the Fort Collins enterprise, conducts a retail shop and uses about 90 per cent of his packing house product for the supply of his retail trade. The conditions on the Western slope are undoubtedly favorable to this kind of business.

We note you state the proposal to build a plant is based on the reported fact that \$200,000 worth of packing house products are annually imported to the Uncompahgre valley. This would be an equivalent to from 12,000 to 15,000 hogs, which, if packed locally, would require a plant with a capacity of 250 to 300 hogs per week throughout the year. A plant of this size, fully equipped, would cost in the vicinity of \$40,000 to \$50,000 and would require from \$75,000 to \$100,000 additional for operating capital; this latter depending somewhat upon the extent of the fresh meat business.

The freight rate on live hogs from Montrose to Denver we note is 45½ cents per cwt., and the rate on cured fresh meats and meat products from Denver or Pueblo to Montrose is 60 cents per cwt. Under these conditions it would seem that a small packing plant could well be established in this locality for the purpose of preparing home grown hogs to meet the local demands.

There are three types of packing plants that would be adaptable to the purposes of this particular community:

(1) A plant fully equipped to do packing business throughout the year and sufficiently large to take care of the entire meat supply of the valley. Such a plant would require quite an extensive outlay of money, as indicated above.

(2) Small plants equipped to carry on a winter packing business and summer fresh meat business. The plant of the Matthews Packing Company at Fort Collins, Colorado, mentioned above, is of this type.

(3) Small so-called community plants equipped to carry on win-

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Suggestions Regarding Small Packing Plants. (continued).

ter packing business and summer fresh meat business, if so desired.

It is doubtful in our minds if it would be advisable for the people of this valley to attempt to go into the packing business on a very large scale at the present time. The packing business is of such a nature that we consider it important to start conservatively and develop the business gradually. From a study made by this Office of a number of the smaller independent packing companies it was found that invariably the successful ones were those that started on a small scale and developed gradually. There are several small packing plants similar to the one at Fort Collins located in the Western States and from the information at hand we understand that they are generally successful and it would seem that such plants are well suited to meet the demands of the Uncompahgre Valley.

The community pork packing plant is comparatively new in this country and yet it has many desirable features which should adapt it to conditions similar to those in the community under discussion. There is a plant of this kind located at Bowling Green, Missouri, and while it is privately owned yet a number of farmers in the vicinity utilize it for preparing hogs for market. A charge of one cent per pound is made to the farmers for killing, dressing, rendering lard, cutting and trimming the meat, making the sausage, and salting and smoking hams and bacon. This price is based on the live weight of the hogs when delivered to the plant. This plant, with equipment, cost approximately \$2,000, and 300 hogs can be handled easily each season. It is undoubtedly similar to the plant mentioned in your letter as being owned by a farmer near Montrose. A plant of this nature is also being considered at Basin, Wyoming. It would not be difficult, in our opinion, to operate such small plants on a cooperative basis. Such a plant requires comparatively small capital. Another advantage is that of putting out a standard product for the whole community, which is essential in building up a trade for home cured meats. Efficient labor can be employed if all the hogs in the community are handled at a central plant and such a plant gives an opportunity for inspection, which cannot be obtained where the killing is done on each farm.

There are a number of small plants in Eastern Tennessee which are conducting a winter packing business, thereby avoiding the investment in expensive refrigeration equipment. The killing is done during a cold snap and the curing completed before warm weather comes. From the information we have at hand, these plants are doing a successful business. The climate in Colorado is more

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Suggestions Regarding Small Packing Plants. (continued).

adaptable to such a business than Tennessee and we would recommend that plants of this nature, either privately owned or operated as a community plant on the cooperative basis, be given consideration.

Relative to the more important general requisites to the success of a local packing plant, would say that these were discussed more or less in detail in the press bulletin on cooperative packing houses which appeared in the July 7 issue of the Weekly Newsletter, a copy of which you state you have already sent to Mr. Lindgren. While the article referred to was written more particularly to place the facts before communities in which cooperative packing houses were being promoted, it is equally applicable to privately owned enterprises. Aside from the necessity of having sufficient capital to operate plants of a certain capacity, the ability to dispose of the finished product is of great importance. From the study referred to above, of the smaller independent packing companies, it was found that these plants were compelled to market their products, except those used in local territory, through brokers or the large packers.

There are a number of cooperative packing plants being promoted in various parts of the Middle West which are to be capitalized at from \$250,000 to \$500,000. One of these companies has been in operation for a year and a half and its experience thus far would not warrant our recommending cooperative packing houses on as large a scale.

Very truly yours,

(Signed) C. J. Brand.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Scottsbluff.

During the week ending January 29, the maximum temperature was 65, minimum, -24. Friday, January 28, was one of the worst days of the year, a minimum temperature of 8 degrees below zero being accompanied by high wind and drifting snow. So far, however, there has been no report of hardships to cattle on the range or to the sheep in the feed yards.



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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma.

During the week ending January 15, the maximum temperature was 72; minimum temperature, 22.5; greatest daily range, 34.5. A precipitation of .03 inch fell during Friday and Saturday. On the night of January 14th a very noticeable tremble of the earth was felt. No damage was done, however.

Nineteen acres were irrigated.

Considerable repair work was done on irrigation ditches and leveling was begun on D-1 to 5.

Eight hundred and sixty-eight quart samples of Durango cotton seed were bagged and distributed for the Office of Congressional Seed Distribution.

During the week ending January 22 gravel was hauled and work begun for installing a corrugated iron culvert at the head of the east farm lateral. Leveling continued on D series. Fallow lands A-14-1 and D-14 were plowed for potatoes. Melons were planted on A-12₂₋₃ and A-9. Borders C-37-38-40-42 and 43 were disced, alfalfa being seeded on C-40.

The following temperatures were recorded: Maximum temperature, 67; minimum temperature, 33; greatest daily range, 31. Five days of the week were cloudy and rainy, the total precipitation amounting to .635 inch. Rain was generally reported over all southern California and Arizona. The Salt River overflowed Roosevelt Dam while the rains were very heavy in the water sheds of the Little Colorado and Gila rivers.

The Gila rose to greatest heights and at its intersection with the Colorado at Yuma accumulated the greatest flood since 1891. On Saturday morning, very early, the river levees broke on the Arizona side flooding the lower sections of the town of Yuma and several thousand acres in the Lower Yuma Valley. The levee on the California side of the River overflowed near Yuma and later cut away, allowing approximately 13,000 acres to be flooded. The water was poured over this land in about twenty-four hours, and in many cases came with such rapidity that farmers were forced to escape without removing live stock. The principal losses of live stock was of hogs. The Yuma Indian Reservation was covered first and from there water followed the course of drainage canals into the interior of the valley. Ample warning had been given in most cases, but it was difficult for people to realize that the water could extend to such a distance and apparently against the slope of the land.

The main siphon canal was taken out in several places.

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WESTERN IRRIGATION AGRICULTURE.

Field Notes.

Yuma (continued).

Thirty-five acres of low lying land on the Experiment Farm was covered to a depth from two to five feet at three o'clock Sunday morning. The live stock were then removed to the hills near the dam, but the water rose only a little higher.

In Yuma, Main Street was flooded three feet deep. Many of the adobe buildings collapsed. The Southern Pacific railroad northwest of Yuma a few miles was washed out.

Up to date (January 26) reports are still greatly varied but it seems that approximately 5,000 acres were flooded in Lower Yuma Valley and 13,000 acres on the California side including the entire Yuma Indian Reservation, and 4,000 acres of white farmers' land.

The crest of the flood passed Saturday night. The Colorado was never higher at Laguma Dam and the upper levee was perfectly safe. No deaths are reported except of apprehended looters.

The water is now going down rapidly. No great amount of silt was deposited. There has been no need for outside assistance.

San Antonio.

During the week ending January 29, the maximum temperature was 77; minimum temperature, 38; greatest daily range, 32. The greater part of the week was cloudy and rainy, but very little rain fell, the total precipitation being only .26 inch.

On Monday and Tuesday all fallow rotation plats and other fallow fields were harrowed. The remainder of the week was spent in hauling gravel, in repairing buildings, and doing odd jobs of painting.

CORN ON THE SUNNYSIDE PROJECT.

A striking example of the increasing popularity of corn on irrigated lands is furnished by the Sunnyside Project. This project is located near the east foothills of the Cascade Mountains in Central Washington. The average elevation of the project is about 1,000 feet. The soil is partly sandy loam and partly volcanic ash. The climate is dry, the annual precipitation averaging about 7 inches. The temperature ranges from -21 to 110 degrees F.

In 1910, corn was harvested from 1100 acres, which was about

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Corn on the Sunnyside Project (continued).

2.4 per cent of the total cropped area of the project at that time. In 1915, the corn acreage had increased to 8,165 acres, or about 15 per cent of the total cropped acreage in that year. This marked increase in the proportional acreage of corn is particularly interesting in view of the small size of the farms on the project. In 1915, the average irrigable area per farm of the 2,553 farms reported was only 27 acres; and the average area actually irrigated was only about 25 acres. The development of corn production on the project has accompanied a rapid increase in the live stock population.

The following table has been compiled from figures secured each year since 1910 by the Reclamation Service. Attention is directed specially to the high average yields reported. The value of the corn crop in 1915 was exceeded only by alfalfa, valued at \$937,512; apples, valued at \$404,000; and potatoes, valued at \$392,535. The value of the corn crop, \$293,940, was more than 7 times the combined value of barley, oats and wheat. The table follows:

YEAR	A C R E A G E		YIELD, BUSHELS		V A L U E	
	TOTAL	Increase Over Preceding Year, Per Cent	TOTAL	AVERAGE PER ACRE	PER BUSHEL	TOTAL
1910	1100	--	88,000	80	\$0.70	\$61,600
1911	1477	34	118,160	80	.75	88,620
1912	3804	158	190,200	50	.72	136,944
1913	4516	19	225,800	50	.70	158,060
1914	6004	33	321,281	53	.71	228,834
1915	8165	34	489,900	60	.60	293,940

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Minidoka.

The entire week ending January 29 was spent in arranging for, advertizing, and holding meetings devoted to the problems of swine production and the control of hog cholera. Drs. Sullivan and Henderson of the Twin Falls Office of the Federal Hog Cholera Control Work attended every meeting and discussed the the problems of controlling disease. The lectures were illustrated.

The meetings were held as follows:

<u>Date</u>	<u>Place</u>	<u>District</u>	<u>Attendance.</u>
January 25 p. m.	View	No. 31-South Side	41
" 25 night	Springdale	30 " "	31
" 26 p. m.	Pioneer	5 North Side	68
" 26 night	Paul	13 " "	29
" 28 p. m.	Burley	1 South Side	108
" 28 night	Heyburn	14 North Side	17
" 29 night	Palisade	29 South Side	23

The interest was very good and many questions were asked. The weather was unfavorable every day except Wednesday, the 26th. On Tuesday night there was a severe snow storm and on Friday and Saturday the roads were heavy because of this storm.

Tieton.

Thursday and Friday of the week ending January 29 were devoted to farmers' meetings. Mr. Lashbrook, of the U. S. Dairy Division and the State College. Mr. Price, Dairy and Live Stock Specialist of the State College, and Mr. Hegnauer, Soils and Crop Specialist of the State College, had been secured for these meetings from the State Extension department. Three requests were received at a late date for women's meetings in connection with those for the men. Miss Sutherland, Home Economics Specialist of the State College, was obtained for three meetings. Interest and attendance were excellent.

Tieton farmers who desire to use the National Forest for grazing met at the Cowichee School Wednesday evening, January 26. Representatives of the Cowichee Cattle Company, a rather informal association of cattle owners who have been using the range for a number of years were present. The lecture and discussion con-

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued).

cerned obstacles encountered by the owner of a few animals in trying to use the reserve, essential features of a cooperative association, pertinent problems, classification of applications, an estimate by those present as to the number of cattle farmers might wish to put on the range, estimated costs, availability of range for 1916 and 1917 and other questions.

According to the Cowichiee Cattle Company the forest service asked cattle and sheep men to divide the Rainier Reserve into districts several years ago. The Tieton Cattle Range has been used by several outfits, among which is the Cowichiee Cattle Company. Several years ago, due to the fact that there was not enough cattle to graze all of this range, some of this district was given to sheep men. The Cowichiee Company has invited Tieton farmers who are not already members to join with them and extended the suggestion that by so doing it may be possible for them to use the reserve in 1916. A letter recently received from the district supervisor by one of the active farmers states that there are 1813 cattle on applications for the range this year, and that the range capacity is 1350. Those farmers who wish to use the reserve will put in their applications as soon as possible and will decide later whether to join the Cowichiee Cattle Company or form a separate association. The sentiment seems to be that in either case a more definite form of organization is desired than that under which the Cowichiee Cattle Company has operated.

Huntley.

The entire week ending January 29 was spent in the office. Extreme weather prevailed throughout the week. The minimum temperature reported was 35 degrees below zero.

Records which were kept on 17 of Mr. Meyers' pigs from November 5, 1915, to January 7, 1916, are reported below. This lot of pigs consisted of 7 very good Hampshires, farrowed August 28, and 10 very good Poland Chinas, farrowed between August 31 and September 5. The Poland Chinas averaged 30 pounds, and the Hampshires, 34 pounds on November 5. The results of the 63-day period are summarized on the following page.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes.

Huntley (continued).

Date started,	Nov. 5, 1915.
Date closed,	Jan. 7, 1916.
Number of days,	63
Number of hogs,	17
Total initial weight, pounds,	547
Average initial weight, pounds,	32
Total final weight, pounds,	1121
Average final weight, pounds,	66
Total gain, pounds,	574
Average daily gain, pounds,52
Value of gains @ 6¢ per pound,	\$34.44
Corn fed, pounds,	2800
Skim milk fed, pounds,	875
Corn fed per 100 pounds gain,	487
Cost of corn @ \$1.00 per cwt.,	\$28.00
Cost of skim milk @ 40¢ per cwt.,	\$3.50
Total cost of feed,	\$31.50
Cost per 100 pounds gain,	\$5.48
Value of gains less cost of feed,	\$2.94

All the pigs were fed together and received a ration of ear corn and skim milk for the first 35 days, and corn alone for the last 28 days. Toward the last of the third week, the pigs seemed to be getting too much corn and their ration was cut from 50 pounds per day to $37\frac{1}{2}$ pounds per day. The skim milk was also taken away from them at the end of the third week. This, however, was done because no more skim milk could be obtained. It is probable that a better showing would have been made if we could have continued feeding the milk. The corn fed was of poor quality and for this work is given a value of \$1.00 per cwt., which is 60¢ under the value of good corn. The skim milk is given a value of 40¢ per cwt.

Uncompahgre.

Tuesday and Wednesday, of the week ending January 29, were spent in working over the reports and survey cards of the Reclamation Service for 1915. The report was to have included several questions on the live stock conditions on the Project. The question regarding the number of pure breds was in most cases not answered.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

Four farmers called at the office during the week regarding grazing problems, and other live stock questions.

Two men asked aid in selection of dairy cows. There are two requests on hand along this line. Most of these are for spring purchase.

The week has been stormy and the roads quite impassible. Advantage was taken of this condition in doing office work.

One visit was made to the local creamery, where suggestions were made in regard to marketing.

Huntley.

During the week ending February 5, arrangements were completed for holding two dairy institute meetings on the Project. These meetings will be held at Osborn, February 11, and at Ballantine, February 12. Prof. Martin, Dairyman of the Montana State College, will be present and deliver a dairy lecture at each meeting.

It is expected that a very good Holstein bull will soon be imported to the Project. Three farmers have agreed to buy one cooperatively. They have several animals in view, but will probably buy one offered by the Montana State College at \$175.00. This is a better bull than any of these farmers feel able to buy individually, but by cooperating, each farmer interested will be able to have the service of a high-priced bull at a very reasonable cost. Every possible effort is being made to induce Project farmers to see the advantage of and to practice this kind of cooperation.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte.

The Swine Industry on the North Platte Project in 1915.

The statement below has been compiled from the annual report of Mr. Charles S. Jones, who is engaged in demonstration work in swine production on the North Platte Reclamation Project. Mr. Jones' activities are confined to the swine industry, which is the principal live stock industry on the Project, but his report contains some information relative to the development of the dairy and sheep industries during the year. Cooperation was had with various divisions of the Department of Agriculture, and of the University of Nebraska, and with the local office of the Reclamation Service, and the Nebraska State Live Stock Sanitary Board.

At the close of 1915 there were in operation on the North Platte Project 1095 farm units, as compared with 944 farm units at the close of 1914. The 1095 farms contain an area of 87,554 acres of irrigable land, of which about 70,000 acres was irrigated in 1915. Of the 1095 farm units, 682 are operated by owners and 413 by tenants.

Swine population:— At the close of 1915 there were on the Project 24,928 hogs, as compared with 22,145 in 1914; 14,286 in 1913; and 9,123 in 1912. The 24,928 head of swine on the Project at the close of 1915 were on 600 farms. The number of farms producing hogs in 1914 was 530, there being an increase during the year of 70 farms, or 13.2 per cent. The average number of swine per farm at the close of 1915 was 41.8 head, as compared with 42 head at the close of 1914. In 1915 the number of hogs per farm varied from 1 to 365; 13 farms averaged more than 200 hogs; 52 had from 100 to 200; 103 farms had between 50 and 100; 138 had from 25 to 50; 145 had from 10 to 24; and 149 had from 1 to 9. About 25 per cent of the farms carrying hogs carried more than 50 head at the close of 1915.

Early in the year 1915 there was a marked increase in the interest in swine production, as was indicated by the increased number of hogs seen on farms and the increased acreage of alfalfa fenced hog-tight. However, on account of the low prices during the year, large numbers of light hogs were shipped out. This probably accounts for the relatively small increase shown by the Reclamation Service census at the close of the year. The number of cars of hogs shipped from the valley per month during the last six months of 1915 was 35, as compared with $22\frac{1}{2}$ cars per month during the corresponding period of 1914.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes.The Swine Industry on the North Platte Project in 1915 (continued).

Breeds:- Of the 24,928 hogs on the Project at the close of the year, 18,514, or about 74 per cent, are Duroc-Jerseys, either purebreds or grades. 6,409, or about 26 per cent are Poland Chinas. Of the 600 farms producing hogs, 441 produced Duroc-Jerseys and 159 produced Poland Chinas. Of the entire number of Duroc-Jerseys 2,128 are purebreds and 743 of the Poland Chinas are purebreds. In other words, about 11 percent of the hogs on the Project are purebreds and 74 percent of the purebreds are Duroc-Jerseys.

Feeds:- As the work in connection with hog cholera was much lighter in 1915 than in 1914, it was possible to pay increased attention to other matters relative to swine production. Feeding received a great deal of attention. The prices of commercial hog feeds during the year were about as follows: Corn, from \$1.10 to \$1.60 per cwt., barley, \$1.10 per cwt.; shorts, \$1.35; bran, \$1.30; tankage, \$3.00; oil meal, \$3.00 per cwt. Of these feeds, corn and barley are by far the most widely used. There is, however, some indication that tankage is growing in popularity.

During the year, cooperative feeding tests were inaugurated on 18 farms. The tests on 9 of these farms were concluded during the year. The farmers seem to be getting more interested in feeding grain in connection with alfalfa pasture. In the feeding tests conducted during the year in which a 2 per cent grain ration was fed with alfalfa pasture, pork was produced for about \$4.00 per 100 pounds. The monthly returns per acre of alfalfa grazed approximated \$7.00. Generally better results were secured from feeding corn than from feeding ground barley. In one tests, excellent results were obtained by feeding a mixture of 75 per cent ground barley and 25 per cent corn.

Much interest was shown in hogging-down corn. A number of farmers have estimated their receipts from this practice at from \$30 to \$45 per acre. In one of the cooperative tests, 38 150-pound pigs hogged a field of corn for 25 days and made an average daily gain of 2.19 pounds, paying \$40.65 per acre for the corn hogged.

Cholera:- One of the most encouraging features of the year's work was the very much decreased difficulty with hog cholera. During 1914 treatment for cholera was applied in 81 herds, as compared to 29 herds in 1915. The number of hogs treated in 1914 was 4,887, as compared to 1,116 in 1915. The percentage of hogs lost following treatment was reduced from 16.1 per cent in 1914 to 12.2 per cent in 1915.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

The Swine Industry on the North Platte Project in 1915 (continued).

Worms:- During the year 20 herds were treated for worms. During the first part of the year the santonin and calomel treatment was used, but was later abandoned on account of the increased price of these drugs. American worm seed oil was tried on a few herds but with unsatisfactory results. Good results were obtained from the use of the following mixture: $1\frac{1}{2}$ bushels of soft slacked coal, 10 pounds of salt, 10 pounds of air slacked lime, 4 pounds of sulphur, and 4 pounds of copperas, the mixture being kept before the hogs at all times.

Lice:- Ten herds were treated for lice during the year. The crude oil treatment was used except in cases where the hogs were affected with some skin disease, when a good coal tar dip was added to the crude oil.

Canker Sore Mouth:- Canker sore mouth caused some loss during the year. Eleven herds were treated for this difficulty. Usually the treatments were successful if they were applied promptly and vigorously and the cases were taken in time.

Twenty-six herds were treated for miscellaneous difficulties such as mange.

Marketing:- During the year 1915 the receipts from hog shipments from the valley were approximately \$497,000, or about \$41,000 per month. These average monthly receipts exceeded those of the last six months of 1914 by \$11,000, or 25 per cent. During 1915, 400 cars of hogs were shipped from the Valley, the average number of cars shipped per month being $33\frac{1}{2}$ as compared with $22\frac{1}{2}$ cars per month during the last six months of 1914. The average price received, f. o. b. Valley points in 1915 was \$6.82 per cwt. as compared with an average of \$7.42 per cwt. received during the last six months of 1914. In 1915, the highest average monthly price was \$7.60, in October, and the lowest \$5.85, in February.

Practically all the fat hogs are shipped to Denver, the average cost per cwt. being about 39 cents, of which the freight rate is 22 cents. Most of the shipments are made by individual farmers or farmers' associations, very few hogs being sold to local buyers. A large number of the shipments are made through farmers' cooperative associations, which usually charge 10 cents per cwt. for their services.

Hog Houses:- The need for better hog houses on the Project is very acute. An investigation made during the past season in about 50 herds, containing about 1,000 brood sows, showed that ap-

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

The Swine Industry on the North Platte Project in 1915 (continued).

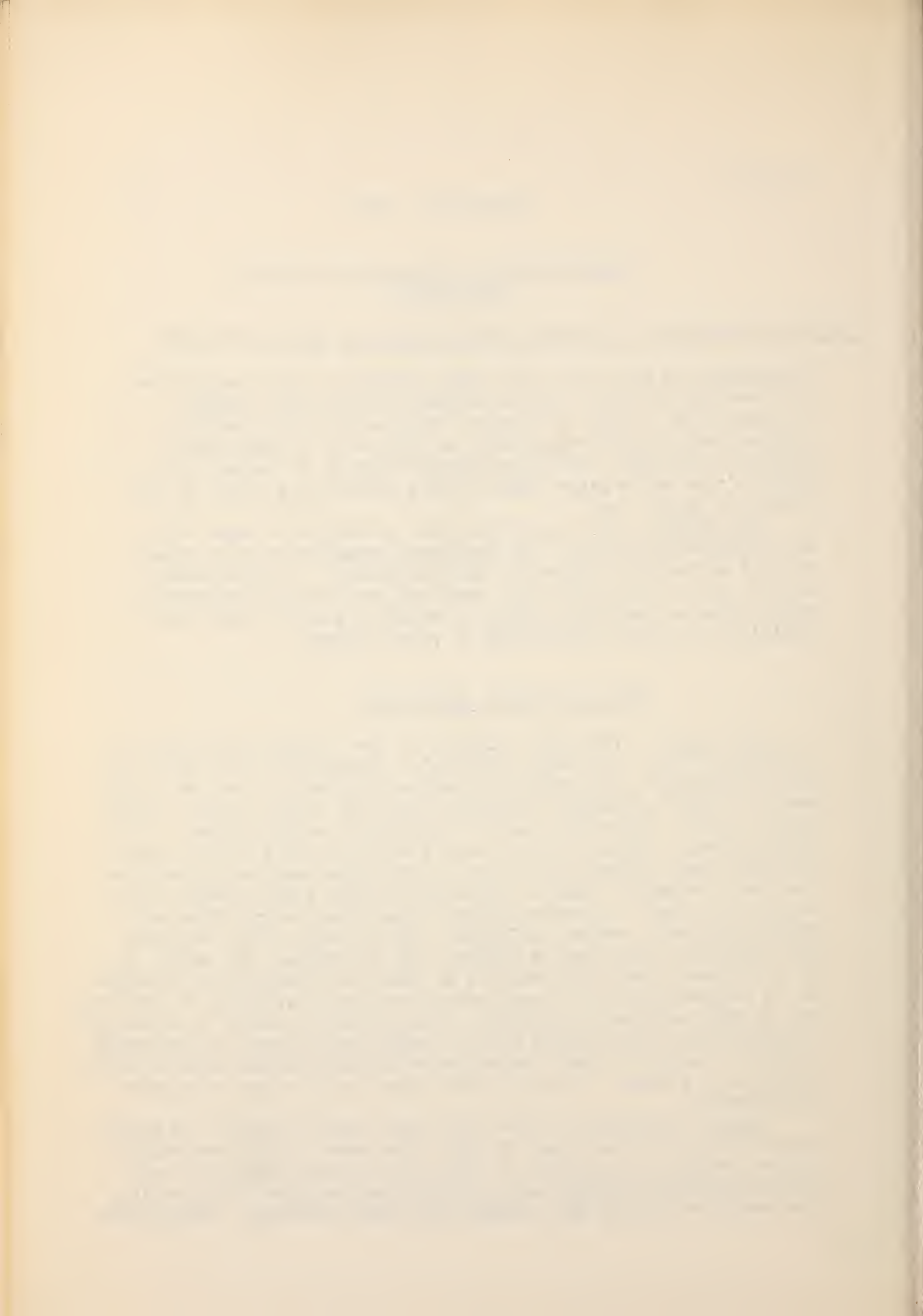
proximately 33 per cent of the 1915 spring pig crop was lost before weaning time and that the losses were due very largely to inadequate housing facilities. Because of this condition, a great deal of time was devoted to the matter of improving housing facilities. Plans were distributed to 17 farmers during the year and a large number of hog houses were built as the result of these plans.

Pig Clubs:- In cooperation with the Extension Department of the State University, pig clubs were organized in the spring of 1915 at Morrill, Mitchell, and Scottsbluff. A total membership of 60 were enrolled. The work was concluded in September, at the time of the County Fair, at which 20 pig club pigs were exhibited, and \$105 distributed to prize winners.

Dairy and Sheep Industries.

Dairying:- The dairy industry on the Project until very recently has been practically negligible. During 1915 it experienced some development. The number of cattle reported as used, or to be used, for milk production increased from 1521 head in 1914 to 2540 head in 1915. These 2540 head of cattle were on 614 farms. Of the total number, 1728 are mature females which are held on 433 farms. In other words, about 39 per cent of the farms have one or more mature dairy animals. Each of 36 farms has more than 10 head of mature dairy cows. The mature animals classed as dairy cattle are of the following breeds: Holsteins, 159; Jerseys, 321; Guernseys, 17; Shorthorns, 617; Polled Durham, 472; Red Polled, 57; Angus, 2. It is evident that relatively few of these are really dairy animals. It is estimated that the total income from dairy products on the Project in 1915 amounted to \$23,000. A cooperative creamery in course of construction at Scottsbluff will be ready for business in the spring of 1916. During the year the price of butterfat varied from 22 cents to 33 cents a pound. Grocery stores were the principal purchasers of butterfat.

Sheep:- According to the live stock census taken by the Reclamation Service at the close of 1915, there were 2,254 sheep raised on the Project. In addition to these home-raised sheep, 815 cars, or approximately 212,000 head, were shipped into the Valley during the months of October and November for winter feeding. During those



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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

The Swine Industry on the North Platte Project in 1915 (continued).

two months 315 cars more of sheep were shipped in than during the corresponding period in 1914.

Numerical Statement.

During the year 477 farm visits were made; 510 requests for services were received, and there were 205 callers at the office. There were 1,112 communications by letter; 17 farm building plans were distributed. There were 25 outbreaks of cholera, for which treatment was applied in 29 herds, including 1,116 hogs; 64 herds of swine were treated for other difficulties than cholera, of which 20 were treated for worms, 10 for lice, 11 for canker sore mouth, and 23 for miscellaneous difficulties. During the year, 400 cars of hogs were shipped from the Valley at an average local price of \$6.82 per 100 pounds, the total receipts being \$496,788. Eighteen feeding tests were inaugurated; 38 meetings were held, at which the total attendance was 1,671. At these meetings 40 lectures were delivered, and 17 demonstrations were made.

19 February, 1916.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

During the week ending February 5, the coldest weather of the season was experienced, the minimum temperature being 20. The greatest daily range was 31, and the maximum temperature was 78. No rain fell after Monday, when .07 inch precipitation was recorded.

The cold weather did further damage to the field peas. None of the field peas which were frozen to the ground by the previous cold weather revived so that the stand of peas on the rotation plats is reduced about 50%. In the variety test, certain varieties were entirely killed out. The Grey Winter variety was uninjured and the Kaiser shows very slight injury. Flax which escaped injury from the first freeze was slightly damaged by the recent freeze, certain varieties rather severely. Oats were frozen to such an extent as to give the field a distinctly brown appearance.

The principal work done during the week was that of hauling gravel and filling the pond on field B3. The cotton produced on the farm the past season was hauled to the gin on Saturday. There was sufficient cotton to make two large bales.

Yuma.

During the week ending January 29 temperatures were recorded as follows: maximum, 69; minimum, 32, and greatest daily range, 29.

Plats A-10-7 and A-15-6 were manured and plowed. Border D-14 was plowed and prepared for planting potatoes. The recent flood conditions have made it impossible to secure shipments of seed potatoes at present.

Leveling continued on D-1 to 5. A corrugated iron culvert was set at the head of the east farm lateral.

Measurements were made of growth of deciduous fruit trees, eucalyptus trees and seedling date palms in the various plantings.

The flood water on the inundated area has rapidly receded, but reports were received on Saturday, the 29th, of another flood in the Gila River. With the open levee this is sure to overflow the lands again.

19 February, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff.

The weather during the week ending February 12 moderated a little, but is still very disagreeable outside; it has not been possible to do much outside work. The manure is frozen and it is impossible to handle it at this time. We have started to paint some of our buildings, but the weather is such that very little headway can be made in this work.

At three different times we have started to do some cement work in our cow barn, but no more had we begun than the weather changed and became cold so that we could not do any concrete work in the barn. All of the work is more or less delayed.

Some trouble has been experienced with the water system.

DEMONSTRATIONS ON RECLATION PROJECTS.

FIELD NOTES.

Uncompahgre.

During the week ending February 5 four farm visits were made, 20 samples of milk were tests for butterfat, 5 farmers called at the office, and a conference was held with 14 other farmers.

On Tuesday the annual meeting of the Water Users' Association was attended at Olathe. The time was taken up before and after the meeting in talking to the farmers regarding hog feeding, cows and silos. Several inquiries were received in regard to the building of pit silos. Arrangements were made with one farmer to test his cows for butter fat. Four requests for farm visits were received.

On Wednesday, a sale of farm stock and implements was attended. One farmer was aided in selecting a mixture for pasture. Assistance was given two men who are interested in the buying of some of the cows offered for sale. Two others inquired regarding the shipping in of Holsteins.

On Monday, a visit was made with two farmers to see a Holstein herd near Montrose. There are twenty-one head of cows, most of which are grade Holsteins and are offered for \$2,200. The older fifteen cows are offered for \$1,500. A part of these animals were imported from California last year. These cows are of good size, but some of the animals are of poor type.

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

The hog market is very much better. The farmers are encouraged over the outlook. Prices are around \$7.50 at Denver, which means \$6.60 on the Project. A car load will be sent out within a few days.

Butter fat is selling at 25¢. It is planned to hold a meeting of the small creamery men on the Western Slope in the near future, to get some sort of agreement in regard to surplus butter.

Truckee-Carson.

During the week ending February 5 there were received 25 calls for assistance and eight farms were visited.

For the past two weeks this valley has experienced the hardest winter weather that has prevailed for twenty-five years, according to the old settlers. On January 23, 24 and 25, there were temperatures of 18, 20 and 12 below zero, respectively. These low temperatures, accompanied by heavy snow fall, have been very trying on live stock, as very few people here are prepared to care for live stock under these conditions. The severe weather caught many large bands of sheep in the surrounding hills, and considerable loss is being experienced now as a result of the severe weather, especially on account of the forage being covered deep with snow. A part of one large band of sheep is being hauled into the valley and fed alfalfa hay, but owing to their weakened condition, much loss is experienced.

The experience of the last two or three weeks will no doubt result in the building of shelter for live stock in case of emergency.

Because of the severe weather for the past three weeks the work has been considerably lessened. Communications with farmers were limited almost entirely to the telephone. It is feared that when the weather becomes warmer the roads will be impassible for an automobile on account of the mud.

A very severe out-break of what is supposed to be spinal meningitis has resulted in the loss of twelve horses on one of the ranches belonging to the Williams estate. Two visits have been made by representatives from the University of Nevada for the purpose of diagnosis. So far the trouble does not seem to have spread to other farms.

During the past week a circular letter was issued concerning garget in dairy cattle. This is a very common ailment in dairy herds, and the common methods of care and treatment which should be under-

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Truckee-Carson (continued).

stood by dairymen were pointed out in the circular letter.

Boise.

Bad roads made field work impracticable for three days of the week ending January 8; 13 men called at the office.

On Thursday two meetings were held at Huston, at which 25 and 23 were present. Potato diseases were discussed by Mr. E. P. Taylor, of the University Extension staff. Silos were discussed by County Agent Williams, and silage and pastures by Mr. Ireland. Interest was good.

Friday and Saturday were spent in the field. 10 farm visits were made in the interests of a cow testing association and to vaccinate one small herd of hogs.

The week ending January 15 was almost entirely taken up with meetings. On Monday the annual meeting of the Water Users' Association was attended and another meeting was attended in Caldwell that night. Four days were spent at the State Dairymen's and Swine Growers' Associations' conventions in Boise, and Saturday was also spent in Boise in conference with Extension Department, and Reclamation Service officials, and the County Superintendent of Schools.

Two meetings were attended during the week ending January 22, one on Saturday at Melba where a meeting had been held on December 22. Bad weather cut down the attendance, only 26 being present. The organization begun at the first meeting was called the Melba Farmers' Commercial Club.

The State Pure Seed Growers' Convention and Fair were held in Caldwell this week. In general, exhibits were good. Small grains and clovers were strong, peas and beans were fairly well represented, and there was a good number of potato exhibits, although diseases were very apparent, a large number of the samples being disqualified on account of disease. The corn show was by far the best ever seen in the State, the quality of corn showing great improvement over that shown last year and the quantity being greater.

Silver cups were offered as sweepstakes premiums for corn, oats,

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes.

Boise (continued).

barley, wheat and potatoes. All of these except that for barley were won in the Boise Valley.

The dairy herds of Mr. Rees and Mr. Cooper of Deer Flat were tested again this week.

North Platte.

The first three days of the week ending January 15 were spent with Mr. Ashby, visiting farms and in the office. With Mr. Ashby the matter of feeding floors for hogs was investigated. In these investigations it was found that on farms where feeding floors were used, about 7 square feet was allowed for every 200-pound hog. Most of the farmers thought this plenty of room. It was brought out that the feed should be fed in rows on the feeding floor, in this way the hogs are made to stand side by side while eating and thus use less space than when the feed is scattered all over the floor.

While discussing the matter of hog houses with farmers it has been very interesting to note the varieties of opinions as to what constitutes a good hog house. It seems that all are against a concrete floor, unless there is a false wooden floor on top of the concrete. Some are in favor of large colony houses, others prefer the individual house, and others prefer the 2 or 3 pen semi-movable house. A few farmers are now using individual "A" houses who have used rather expensive colony houses in other parts of the State. However, we favor a colony house where there are 10 or more sows. There is no doubt but they will give best results where properly constructed. However, where it is possible it is well to have both.

Prof. Chase, Agricultural Engineer of the State University, is now running an experiment with a number of small hog houses, about 8' x 12', to determine which kind of walls are warmest and most suitable. With the exception of the walls of the house all are built alike. Each house has 6 shoats in it and the temperatures of these houses are being taken. The following are among the walls that are being used in this experiment: single board wall, double board wall, solid concrete wall, concrete wall with air space between walls, double plastered wall, and clay block wall. At the present time the experiment has not run long enough to get any definite data, but the results should be interesting. Clay blocks are used as floors in all houses.

The hogs in E. W. Brown's hog feeding tests were weighed up during the week. Mr. Brown is making tests with 4 different lots of

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte (continued).

hogs. All are being fed different rations, but ground barley has been the principal feed in all lots. Inasmuch as the results have not been specially satisfactory during the past 30 days, some corn will be added to all the rations. There are 143 hogs in these 4 tests.

The week ending January 22 was spent in Lincoln, attending the Farmers' Organized Agriculture meetings and conferring with University officials concerning the work on the Project.

From the discussions at the Nebraska Swine Breeders' meetings it is evident that the practices of self-feeders, hogging down corn, and the use of tankage as a supplement to other feeders for hogs, are gaining in popularity among the swine breeders in the State.

The prevailing belief seems to be that on account of the low prices of hogs during the past several months, and on account of an immature corn crop, many farmers have greatly reduced their breeding herds, that the hog crop will be short during the coming season, and that the price of hogs will be high. It has been estimated that in northern Iowa the 1916 hog crop will be 80% less than in 1915.

Arrangements were made with the Extension Department of the State University for sending out two speakers to assist in holding farmers' meetings on the project during the last week in February.

Plans have been made for holding meetings at four different points, two in towns and two in the country. One of the meetings will be held at the lower end of the project, where no meetings of this nature have been held thus far. Plans are being made for making the meeting in Scottsbluff a special meeting of dairymen and swine breeders from all over the Valley. Speakers other than the regular Institute speakers will be at this meeting.

The boys' pig club work on the project will be continued this year and will be carried on in cooperation with the Extension Department of the State University who will furnish all forms used in the work. The reports will be somewhat simplified this year as compared with those in 1915.

Arrangements were made with the State Serum Plant for keeping a supply of serum on hand on the project for prompt use when needed.

At the State Dairymen's meeting the handling and shipping of cream was a very much discussed topic. The opinion seemed to be quite general that the farmers are very careless in caring for their

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte (continued).

cream. The product could be greatly improved by cooling the cream at once after separating, after which it could be kept in very good condition for a considerable time in an ordinary water cooler. Another point brought up was that often the railroad company will allow cans of cream to stand in the sun on the platform for several hours after delivery. These facts emphasized the importance of a cream grading system.

I.

A Nebraska Cooperative Hog Marketing Association.

Recently information was received concerning a farmers' shipping organization at Albion, Nebr. One man has charge of the hog shipments, another has charge of all other shipments. When farmers have fat hogs to ship they notify the man who has charge of this business, and he lists them. When a sufficient number of hogs have been listed to make a shipment, the farmers are notified to bring in their hogs.

When they come in the hogs are classified. Hogs coming from a considerable distance are shipped in a car separately from those that come only a short distance. In this way the shrink is more uniform, and the settlement is more fair than it would be if the two classes of hogs were shipped in the same car. Also, the hogs are classified according to quality. In this way every man gets paid for his hogs according to their quality. The Association charges \$5.00 per carload for handling the hogs. This Association has been doing business in this way for a number of years and has displaced the four local hog buyers that were doing business in Albion when the Association was started.

During 1915 they shipped 150 cars of fat hogs to Omaha. In order to work the classification plan, it is necessary in many instances to have several cars of hogs in each shipment.

In a hog feeding test, completed during the week ending January 29, on the farm of Mr. Ferbrache, the fact was very forcibly brought out that a ration of corn alone cannot be economically used as a ration for fattening hogs at the present prices. Mr. Ferbrache was advised to add at least alfalfa hay to the ration, but he preferred the corn alone. In this test 87 purebred Duroc-Jersey pigs were hand-fed corn, a full ration, for 29 days, after which they were shipped. The hogs each ate an average of 7.76 pounds of corn daily, and gained an average of 1.14 pounds daily. The cost per 100 pounds gain was \$9.15.

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte (continued).

During the week 9 inquiries were received at the office for information concerning hog houses. Hog houses were planned for three farmers. Recently a man very much interested in the swine business in this State, and who has visited a great number of the farms where purebred hogs are raised in Nebraska, stated that he did not know of a single satisfactory colony house for hogs that he would recommend. This indicates that there are but very few really good colony hog houses in the State. He further stated that the following are the most serious faults with most hog houses: not enough sunlight, not properly ventilated, and lack of arrangement for exercising both sows and pigs, and for feeding the sow outside the house. He was in favor of having ventilator shafts coming from the roof to within about 18 inches of the floor, to carry off the foul air.

On account of cold and stormy weather practically the entire week has been spent in the office doing general office work.

Tieton.

Practically all of the week ending February 5 was spent with Mr. Ashby, of the Office of Public Roads and Rural Engineering, in visiting representative hog growers of the Valley relative to hog houses, feeding floors, and other structures related to the swine industry. Due to the heavy snowfall which put the roads in a very bad condition, only three days were spent in the field in this portion of the Yakima Valley, and one on the Sunnyside Project.

Six of the farms visited are using some form of the individual "A" type or shed roof house. Six had some form of colony house, four of these having the individual type as well as the colony. One owner of a colony house prefers the "A" type houses which he used in part last summer. His objections, inconvenience in keeping the house clean, of sunlight and pens, seemed to be due partially to the location and type of colony house. The men with small herds reported very good results with the individual type. One herd housed in straw sheds with very low roofs was in good condition. The owner of this herd plans to build a small colony house this summer.

Farrowing pens ranged from 9'x9' to 6'x8'. Some of the individual houses had fenders on all sides, some had them on only the ends. The house with permanent fenders on the ends and removable ones on the sides has given very good satisfaction. The only colony house without fenders was very unsatisfactory last year.

There were 29 people at the Cottonwood School Friday evening at

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued).

a regular meeting of the Neighbors' Club. Mr. Ashby spoke of the work of the Department in planning farm buildings and the writer discussed silo building. Results of last month's milk and feed records were discussed with some of the men present whose herds are on test.

Office conferences this week were regarding management of sheep from now through lambing season, grazing problems connected with the use of the National forest, and silos.

Alfalfa hay is still at from \$15 to \$18 per ton although some of the sheep men in the lower Valley are reported to have paid more for small lots. Butter fat, on the routes, is at 31 cents. Prime hogs have advanced locally to from \$7.00 to \$7.25 per cwt.

Due to the heavy snowfall and the consequent suspension of railway service on nearly all the lines except those running in the Yakima and Columbia valleys, the sheep men wintering their flocks in the lower valleys are facing a feed shortage. The supplies on hand have served most of them by limiting the allowances and feed is being started to the camps as rapidly as possible. The greatest concern seems to be keeping ewes in prime condition for lambing.

One farmer has begun feeding his pigs alfalfa tea, made from hay left in the horse and cow mangers. The hay is steeped in a cooker after having been run through a feed cutter. The pigs have learned to like the tea so well that they refuse water, whether cold or warmed. Potatoes are also cooked for the pigs and grain mixed with the potatoes after cooking. Chopped alfalfa hay, slightly cooked is also fed in feeding racks with slats close together. The cooked hay is eaten up clean very quickly. So much cooking requires considerable labor and fuel, but in this case no extra labor is required than that otherwise idle on the farm, and sage brush and grease wood are easily available for fuel. The owner is doubtful of the economy of his system under any conditions where extra labor or expense would be involved, except, of course, cooking the potatoes.

Shoshone.

During the week ending January 29, 17 men called at the office, 1 stock sale was attended, and 14 cows were tested in three herds.

The bull which was selected at Red Lodge, Montana, for Mr. Thornburg, arrived and the owner expressed satisfaction concerning his purchase.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

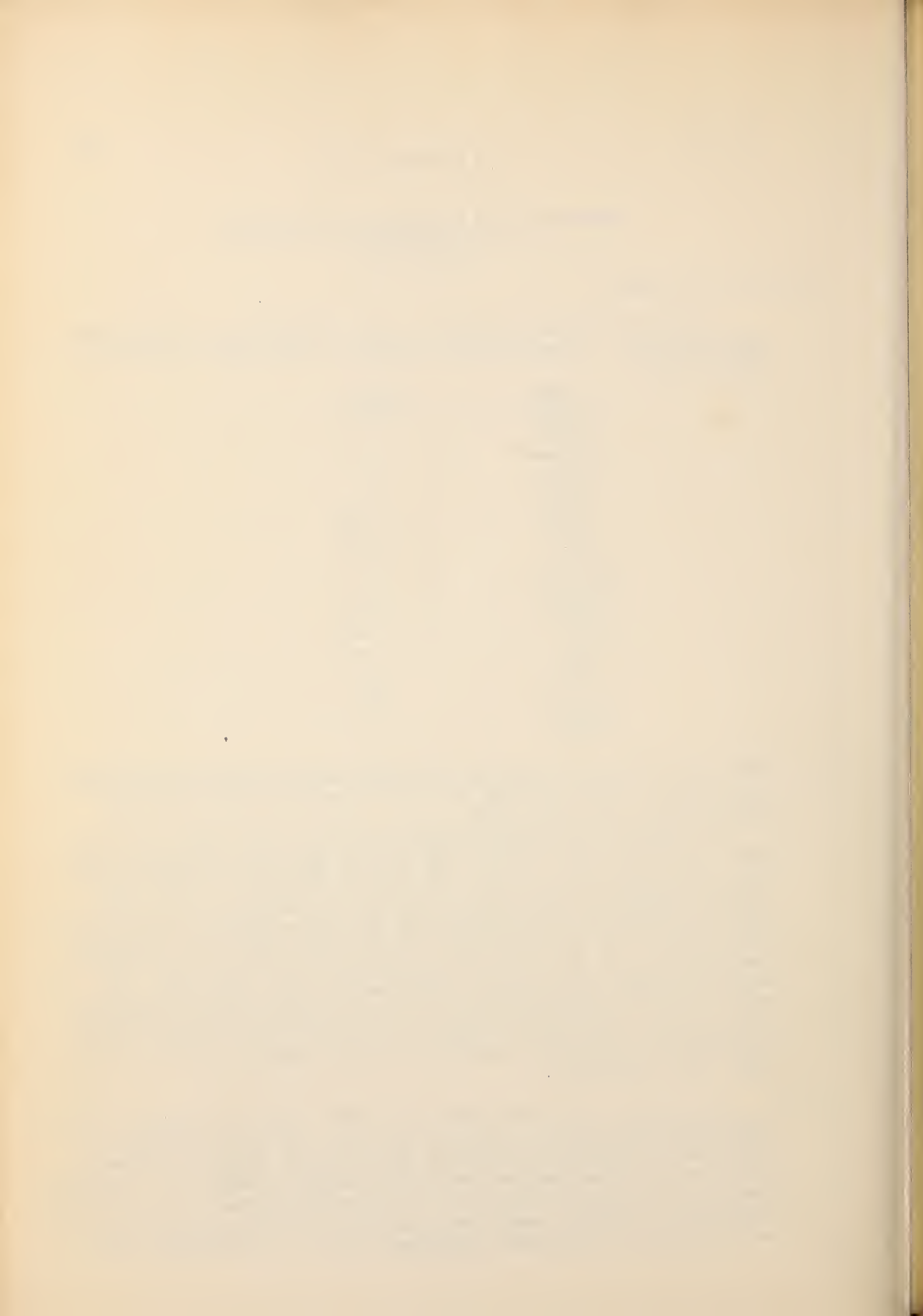
So far 21 men have expressed their intention of sowing mixed grass pastures. Those who are considered most likely to plant are named below:

<u>Name</u>	<u>Acres</u>
Dillavou	--
Nelson	--
Bozeman	--
Pickle	8
Harris	6
Frey	1.75
Elliot	1.25
Faas	2
Rollofson	4
Knight	8
Hecht	.25
Brown	--
Hart	--
Carlson	10
Wood	--
Wright	--

Those for whom the acreage is not given have not reported the acreage desired. Forty-one and one-fourth acres have been reported but that report is not final.

At the sale attended the stock sold for a low price but they were of rather a poor quality and some of them were doubtful breeders. The high price of feed also lowered the price. The following are typical of the stock and prices: A six-year-old red cow, fresh ten months, giving between two and three gallons per day, and bred once but not with calf sold for \$40.00; a small Holstein heifer calf sold for \$11.50; three yearling heifers out of red cows and by a Jersey bull sold for \$18.00 each; a year and a half old heifer bred to a Guernsey bull, out of a red cow and by a Guernsey bull, sold for \$40.00; a 2 year old heifer out of a red cow and by a Jersey bull, fresh two months and giving 3 gallons per day of 4% milk, sold for \$45.00.

During the last three days of the week ending February 5, the annual project farmers' institute was held. Mr. T. S. Parsons, Professor of Agronomy at the State Agricultural College, discussed beet growing, rotations and fruits and gardens. Prof. A. D. Faville, Professor of Animal Husbandry at the State Agricultural College, discussed sheep feeding, small herds of sheep for the farm, hog raising and feeding, and stock farm management. Mr. I. D. O'Donnell dis-



19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

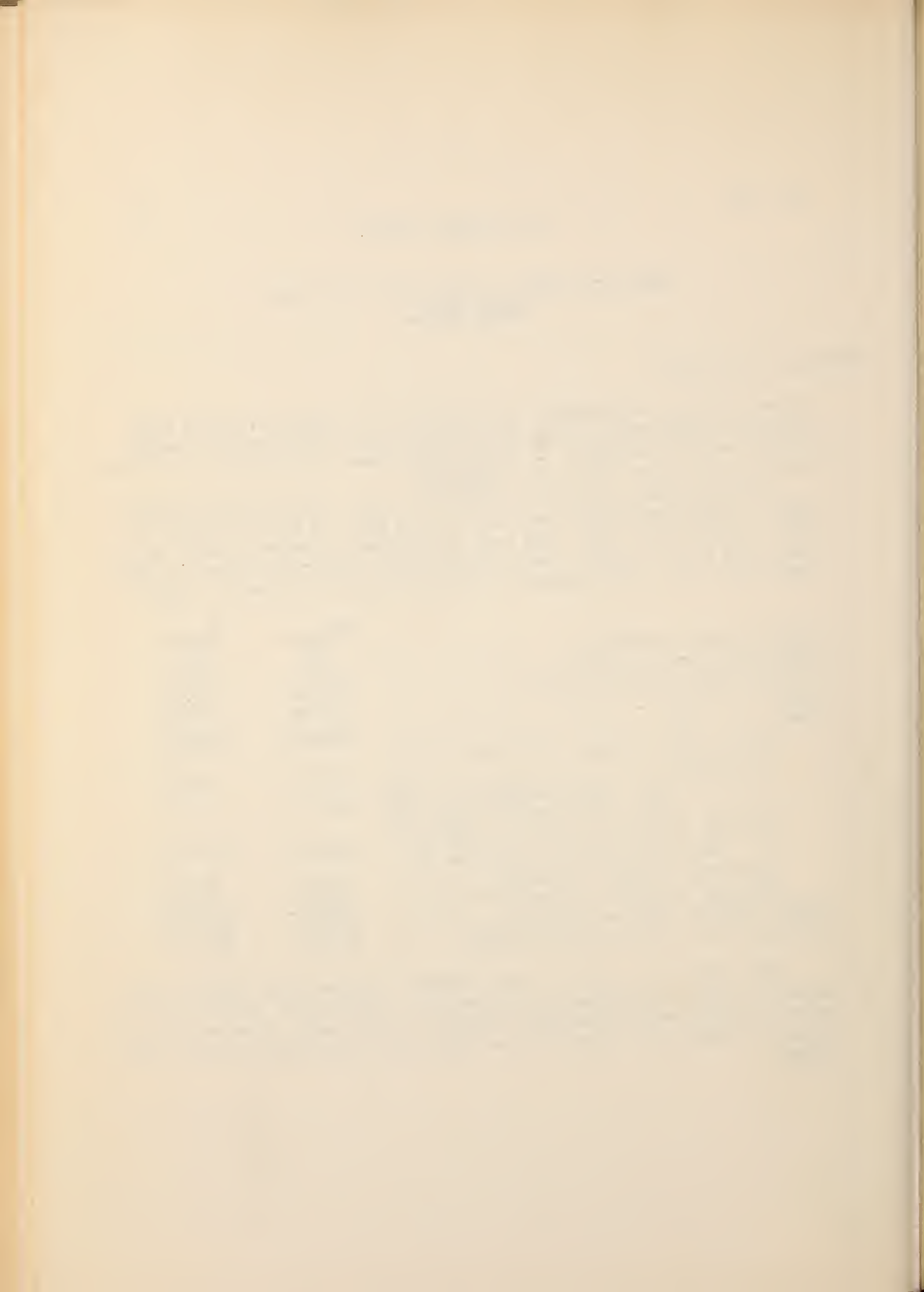
Shoshone (continued).

cussed general farming and rural credit; two ladies from the Home Economics Department of the State Agricultural College had charge of the ladies' meetings. A local farmer gave advice to new settlers. Dairying was discussed by Mr. Magruder.

The following data was obtained from Mr. Curtis Wilcox regarding two grade Holstein 2-year-old steers sold in Omaha, January 24, 1916, at \$6.50 per cwt. The cost of shipment charged against each steer was \$7.00. These steers were in the cooperative herd in 1915. Steer No. 1 was born November 20, 1913, and No. 2, March 1, 1914.

	<u>No. 1.</u>	<u>No. 2.</u>
Age when sold, months.....	26	23
Weight when sold, pounds.....	1130	1120
Selling price @ \$6.50 per cwt.....	\$73.45	\$72.80
Shipping charge.....	\$7.00	\$7.00
Feed.....	<u>\$50.60</u>	<u>\$38.10</u>
Whole milk, 20 days, 320 lbs. @ \$1.25 per cwt.....	\$3.60	\$3.60
Skim milk: #1, 240 days, 4800 lbs. @25¢ #2, 130 days, 2600 lbs. cwt.	\$12.00	\$8.50
Hay: #1 until 17 mos., 3½ tons @\$6.00 #2 until 14 mos., 2 tons a ton	\$21.00	\$12.00
Pasture, 6 months on range.....	\$5.00	\$5.00
Hay fed 3 months, 1½ tons @ \$6.00.....	<u>\$9.00</u>	<u>\$9.00</u>
Total charges, feed and freight.....	<u>\$57.60</u>	<u>\$45.10</u>
Selling price less feed and freight.....	\$15.85	\$27.70

The charge for feed on these steers is higher than that of many steers of this age raised on the Project. The charge of \$5.00 instead of \$2.50 was allowed for pasture on the range, because of the expense of taking the steers to the range after the main herd had been taken.



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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre.

Live Stock Industries on the Uncompahgre Project in 1915.

The following statement is a summary of a report submitted at the close of the past year by Mr. H. A. Lindgren, who is doing field work in live stock industries on the Uncompahgre Project. Mr. Lindgren did not begin work until the middle of October, 1915, so that his report is chiefly a statement of the present status of live stock industries on the Project at the close of the year, it having been impossible to accomplish much field work during the short time since the work was inaugurated. In the work on the Uncompahgre Project cooperation is had with various divisions of the Department of Agriculture, the Colorado State Agricultural College, and the local office of the Reclamation Service.

The Uncompahgre Project includes about 900 farms. The production of fruit, sugar beets, and potatoes has considerable importance, but for the Project as a whole the production of live stock and live stock products promises to become the major industry.

The Swine Industry.

Population:- The swine industry, during the year 1915, experienced a very marked expansion. Swine production fits in well with various local farming practices, and because of this and the small capital required it is becoming increasingly popular. The number of hogs on the Project increased from 4941 at the close of 1914 to 10,880 at the close of 1915, the increase amounting to 121 per cent. The number of farmers raising hogs increased from 476 in 1914 to 560 in 1915, the increase being about 18 per cent. At the close of 1915, 327 farms carried from 1 to 10 hogs each; 95 carried from 11 to 20; 92 from 21 to 50; 97 from 51 to 100; and 39 more than 100 each. The largest herd on the Project at the close of the year contained 290 head.

Breeds:- Several breeds are represented on the Project. The majority of the hogs are of mixed breeding. Among the purebreds, Duroc-Jerseys and Poland Chinas are the most popular, the number of Duroc-Jerseys appearing to increase more rapidly than any of the others. There is great need of improving the type of hogs and an effort is being made to encourage better breeding methods.

Feeds:- Many of the hogs produced on the Project are pastured on alfalfa, much of which is planted between apple trees in orchards. In this way the hogs use the low grade apples as well as the alfalfa pasture and produce satisfactory results without doing serious



19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

damage to the fruit trees. An effort is being made to encourage the farmers to supplement alfalfa pasture with grain, particular attention being paid to the production and use of barley, which does well on the Project.

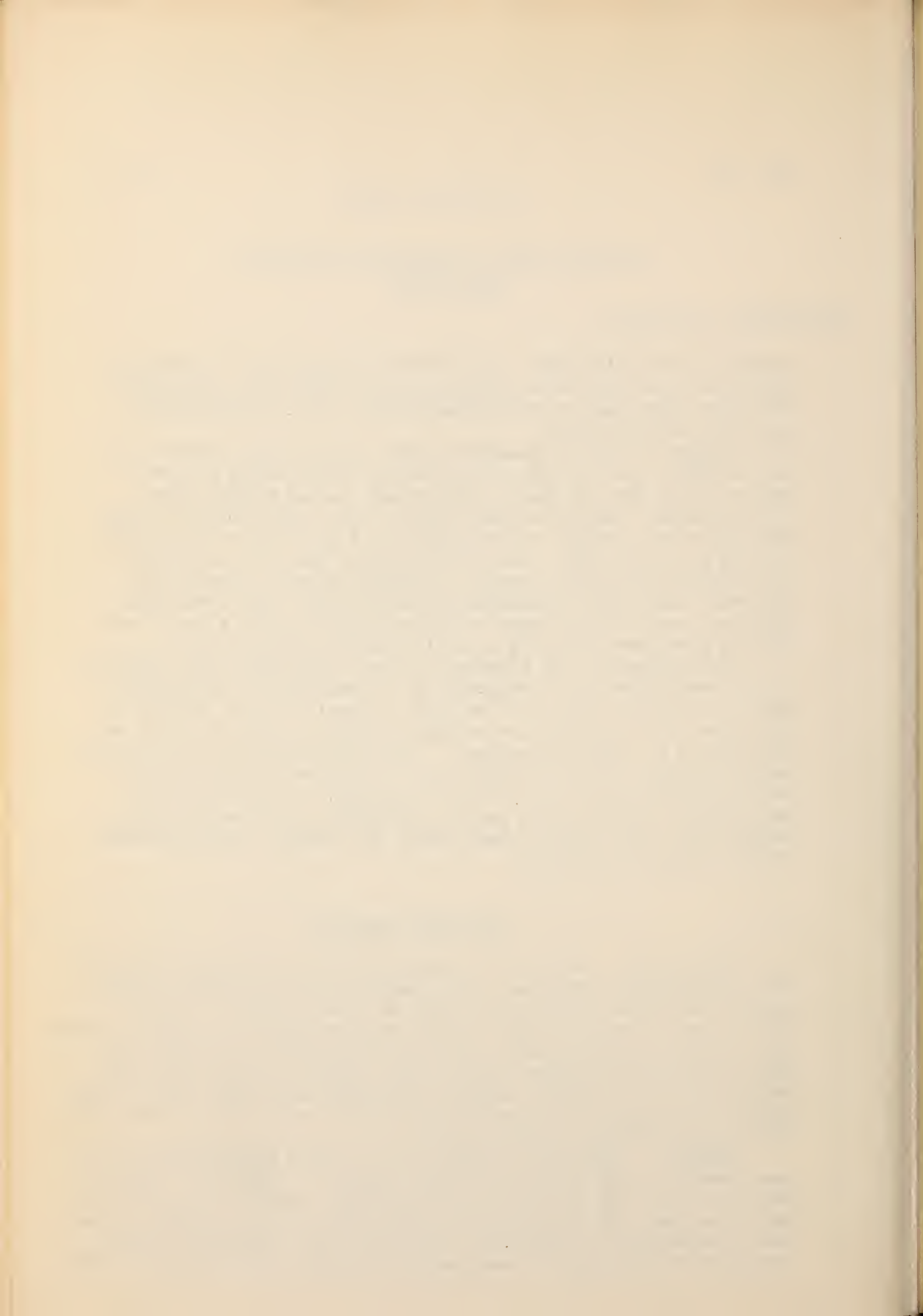
Markets:- Hogs are marketed both locally and at Denver and Kansas City. The freight rate to Denver is $45\frac{1}{2}$ cents per cwt, and to Kansas City 60 cents, the minimum carload weight being 17,000 pounds. During the late fall of 1915, 20 carloads of hogs were marketed in Denver as compared with 3 carloads in the corresponding period of 1914. Most of these hogs were sold at Denver for from \$6.30 to \$6.50 per cwt. Complete figures relative to shipments could not be obtained at the time the report was made. There has been some interest in the establishment of a local meat packing plant and this matter is still under consideration.

During November and December 26 farm visits were made relative to hog production and 17 requests for information on the subject were received and answered. At each of three meetings held in cooperation with the State Agricultural College, a talk was made on the subject of swine production. The work in connection with this industry during the coming year will be directed chiefly towards better breeding, improved housing facilities, better sanitation, and improved feeding, with special attention to the use of corn, barley, and other locally grown feeds; and towards the improvement of the marketing situation.

The Dairy Industry.

Population:- Next to the swine industry, dairying is at present receiving most attention. The number of cows classed as dairy animals increased from 1,114 in 1914 to 2,317 in 1915, or about 100 per cent. Most of this increase was probably due to the increased use of beef breeds for dairy purposes. The 2,317 cows classed as dairy animals in 1915 were owned by 418 farmers, of whom 139 owned between 4 and 10 cows; 32 between 11 and 20; and 9 more than 20 each. Considerable interest was aroused during the late fall in connection with the importation of dairy stock.

Breeds:- Mixed beef breeds are at present numerically in the lead among the cattle used for dairy purposes. There are, however, 550 Jerseys and 181 Holsteins on the Project. Where 1 to 3 cows are kept on a farm, the Jerseys are in the lead, but the interest in favor of Holsteins is increasing, practically all inquiries received regarding the purchase of cows having indicated a preference for this



DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

breed. There are a number of Holstein bulls on the Project, which have increased the number of "black and white" cattle to a marked degree. On account of the people having been in the beef business for so long, the larger breeds appeal to them more than the smaller breeds. There are many farms on which the milk cows have been selected from ranch herds and classed as dairy animals. These give a fair flow of milk. There are a few purebred dairy bulls.

Feeds:- Alfalfa hay is the principal feed. Occasionally a little grain is fed in addition to this. There is great need for more succulence in the feeds for dairy cows on the Project. Root crops, as well as corn silage, can be produced successfully. Several yields of 15 to 16 tons of silage per acre have been reported, and one farmer reported a yield of 28 tons of roots. There are at present 20 silos on the Project, most of which were constructed in 1915. It is expected that at least 25 new silos will be erected in 1916.

Markets:- It has not been possible as yet to secure complete information regarding the quantity of dairy products marketed. Some figures, however, are available covering the butter manufactured and the prices paid for butter fat by the local creamery at Montrose. The table below shows the quantity of butter manufactured and prices paid for butter fat by this creamery from April to December, 1915:

Month	Pounds of Butter Manufactured	Price Paid for Butter Fat
April	4,000	26 cents
May	4,200	25 "
June	4,500	23 "
July	4,600	23½ "
August	4,500	25 "
September	4,000	26 "
October	3,800	27 "
November	3,800	27 "
December	4,000	28 "

According to the above figures the Montrose creamery manufactured about 38,000 pounds of butter during the 9 months beginning April, 1915, and paid from 23 to 28 cents per pound for butterfat. Some cream is being marketed at other creameries and a part of that indicated above is received from farmers not on the Project. Considerable time is being spent in assisting the creamery in securing a better market. This has necessitated some improvement in the quality of butter. The local market for butter has been improved chiefly because of the improved qual-



19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

ity and an arrangement whereby the local creamery handles some ranch butter which it ships to commission men in Denver.

During the last two months of 1915, 27 farm visits were made in connection with dairying problems. Information was secured regarding the source of dairy cattle for importation and some cow testing work was inaugurated. Future work in connection with dairying will have to do with the importation of improved stock, local herd improvement, and better feeding and marketing methods, with particular attention to the quality of cream sold by farmers.

The Beef Industry.

The beef industry is very important on the Project. The number of beef cattle owned by Project farmers increased from 4,605 head in 1914 to 5,294 head in 1915, the increase amounting to 15 per cent. The leading breeds are Hereford and Shorthorn. The Uncompahgre National Forest, which is located near the Project, affords range for about 27,000 head of cattle, but much of this is used by stockmen other than those on the Project. It has been proposed that the protective limit be reduced from 125 head to a lower number so as to allow the use of the reserve by more small producers.

There are various problems to be solved in connection with the proper use of the adjacent range lands. These problems include cooperation of small farmers, adjustment of methods of furnishing range bulls, and the management of the open range which lies between the Project and the Forest Reserve. The best use of the reserve cannot be had until there is better management of the intervening range. These matters are being taken up with local live stock associations and with the local officials of the Forest Service.

Reports have been received that 430 cars of cattle were shipped from the Valley during the year 1915, but it was impossible to determine how many of these were owned by Project farmers. It is reported that 55 more carloads were shipped out in 1915 than in 1914. The freight rate to Kansas City is 42 cents per 100 pounds, and to Denver $29\frac{1}{2}$ cents per 100 pounds, the minimum carload weight being 26,000 pounds.

19 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

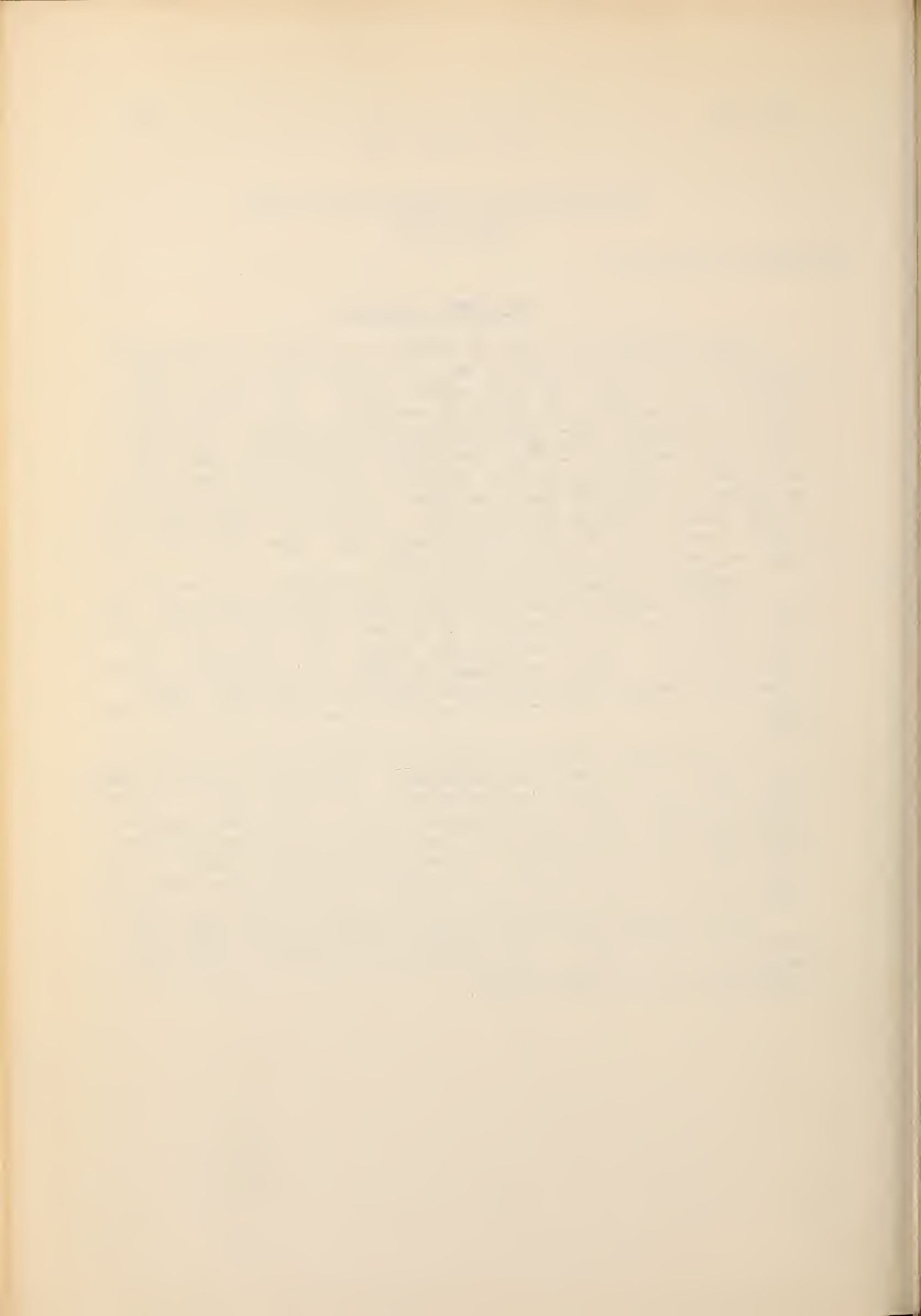
The Sheep Industry.

Sheep production is not so widely distributed on the Project as other live stock industries are. In 1914 there were on the Project 14,710 sheep, and this number increase to 16,335 in 1915, the increase amounting to about 11 per cent. Sheep feeding is more of a business than sheep breeding on the Project. The feeders import lambs and old ewes from Utah and Idaho and other western states. High prices have recently been paid for these feeder sheep. About 6,000 lambs are known to have been imported late in the fall of 1915 at \$7.10 per cwt. In spite of this high price, one of the feeders who fed alfalfa hay, oats, wheat, and corn silage, reported a very satisfactory profit.

Somewhat the same difficulties are encountered in connection with grazing sheep as those mentioned above as affecting beef cattle. The chief difficulty lies in the fact that there are no grazing restrictions on the range lying between the Project and the Forest Reserve. During the summer of 1915, it is reported, 20,000 sheep were brought from Oregon and pastured on this free range, with the result that the Valley live stock men were seriously damaged.

The principal breeds of sheep are Hampshires and Shropshires, much interest being shown in Hampshires. Recently 30 purebred Hampshire rams were imported from Kentucky by a local breeder. Another breeder imported 26 purebred Shropshire ewes. The total importations during the last few months have amounted to about 100 purebred sheep. The production of a few sheep on each of many of the farms on the Project is being encouraged. Many of these farms have small areas of rough lands which could best be utilized by sheep.

No information has been received relative to the total shipments from the Project. The freight rate to Denver is $33\frac{1}{2}$ cents per cwt., and to Kansas City $47\frac{1}{2}$ cents per cwt., the minimum carload weight being 23,000 pounds.



26 February, 1916.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Truckee-Carson.

During the three weeks ending February 12, the ground was covered with snow and as no field work could be performed the men were employed about the buildings and grounds. The weather has now moderated and the snow has nearly disappeared. This winter will go down as the coldest on record for the Carson Sink, and as the one having the deepest snow.

The climatological data for this period is given below:

Week ending January 29.

Maximum temperature.....	48
Minimum temperature.....	6
Evaporation.....	.087
Precipitation.....	.76
Average wind velocity.....	5.11

Week ending February 5.

Maximum temperature.....	47
Minimum temperature.....	-20
Evaporation.....	.055
Precipitation.....	.04
Average wind velocity.....	1.81

Week ending February 12.

Maximum temperature.....	58
Minimum temperature.....	18
Evaporation.....	.031
Precipitation.....	00
Average wind velocity.....	2.41



26 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

THE DEVELOPMENT OF LIVE STOCK INDUSTRIES ON THE
TRUCKEE-CARSON PROJECT IN 1915.

The following is a summary of the report made by L. E. Cline, covering his work in live stock industries on the Truckee-Carson Project during the year 1915. In this work cooperation is had with the various divisions of the Department of Agriculture, with the University of Nevada, the Nevada State Live Stock Sanitary Board, and the local office of the Reclamation Service.

The Dairy Industry.

Population.- During the year 1915 the number of mature dairy cows on the Truckee-Carson Project increased from 1503 to 2579, the increase amounting to 72 per cent. In addition to the 2579 mature dairy cows at the close of 1915, there were 673 immature dairy animals. During the year, 699 dairy animals, of which 30 were registered bulls, were imported to the Project. The importations of the year are classified as follows: Grade shorthorn cows, 8; grade Holstein cows, 364; grade Jersey cows, 181; grade Guernseys, 6; grade Ayrshires, 35; registered Holstein cows, 45; registered Jersey cows, 30; registered Holstein bulls, 27; registered Jersey bulls, 2; registered Ayrshire bull, 1. Matters connected with the bringing in of new dairy stock received a great deal of attention during the year, Mr. Cline having responded to 198 calls for assistance in this connection, and having made trips to California and Utah to assist in the location and selection of stock.

Breeds.- The breeds of dairy cattle on the Project are as follows, their numerical importance being in the order named: Holsteins, Jerseys, Shorthorns, Ayrshires, Guernseys. The Holstein breed has general preference, partly because of its rugged constitution and particularly because of the demand for male calves for the range. However, some of the best producing herds on the Project are Jerseys. The total number of purebred animals reported on the Project at the close of 1915 was 240.

Feeds.- The feeding of dairy animals is confined almost exclusively to alfalfa hay alone, but most of the herds are allowed to graze alfalfa stubble after the removal of the last crop each season. Practically no supplements to alfalfa are used. A test

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.Development of Live Stock Industries on the Truckee-Carson Project
(continued).

in cooperation with a farmer is now under way to determine the value of mangels as a supplement.

During the year considerable cooperative work was carried on in connection with feeding problems. These tests included the use of third-crop alfalfa; supplementing alfalfa with grain; and a comparison of fourth-crop alfalfa with first crop. Considerable information of local value was secured in these tests. In one of them, it was found that the value of milk and butter fat per ton of third-crop hay consumed varied from \$7.38 to \$20.68, the average for the herd being \$17.29. In another, it was found that the use of grain as a supplement to alfalfa reduced considerably the quantity of hay required to produce 100 pounds of milk, but that with high priced grain the net returns were in every case greater where hay alone was used. In another, somewhat better results were secured from fourth cutting of hay than from first cutting of hay.

Markets. The dairymen on the Project are fortunate in having an excellent creamery. This creamery is privately owned. During the year 1915 the creamery purchased from the farmers 279,656 pounds of butter fat at an average price of 26.8 cents, the total value being \$74,861. In addition to this, 20,000 pounds of butter fat was marketed outside the Project. The total butter fat marketed during the year increased 81 per cent over that marketed in 1914. The prices paid locally are the same as paid for San Francisco "Specials". Butter is marketed throughout Nevada and in San Francisco, the freight rate to the latter place being 68 cents per 100 pounds, and the express rate \$1.58 per 100 pounds.

Diseases. The following diseases affect the dairy industry on the Project in about the order named: abortion, sterility, tuberculosis, blackleg, and anthrax. The first three named were imported with dairy cattle from California and northern Utah, the last two named having been on the Project for several years. A great deal of attention has been paid to methods of treating cattle for abortion and much publicity was given to these methods. The fight against abortion has consisted chiefly of quarantine and disinfection measures. Largely as the result of the effective work done in this connection the difficulties of abortion have decreased markedly during the year.

In connection with sterility, which it has been found may be due to a variety of causes, successful results have been secured by treating cows as follows: vaginal disinfection; dilation of Os-Uteri;

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Development of the Live Stock Industries on the Truckee-Carson Project
(continued).

manipulation of the ovaries through the walls of the rectum; and the use of an alkaline wash before service.

The presence of tuberculosis in a few of the herds has been very discouraging to the owners of these cattle, particularly as the cattle were purchased under "clean bills of health". Out of 113 cattle that have been tested, in cooperation with the University of Nevada, 21 have reacted. Because of the agitation of the tuberculosis situation, the farmers are very much alive to its dangers, and it is not uncommon for buyers to require the tuberculin test when animals change owners within the Valley.

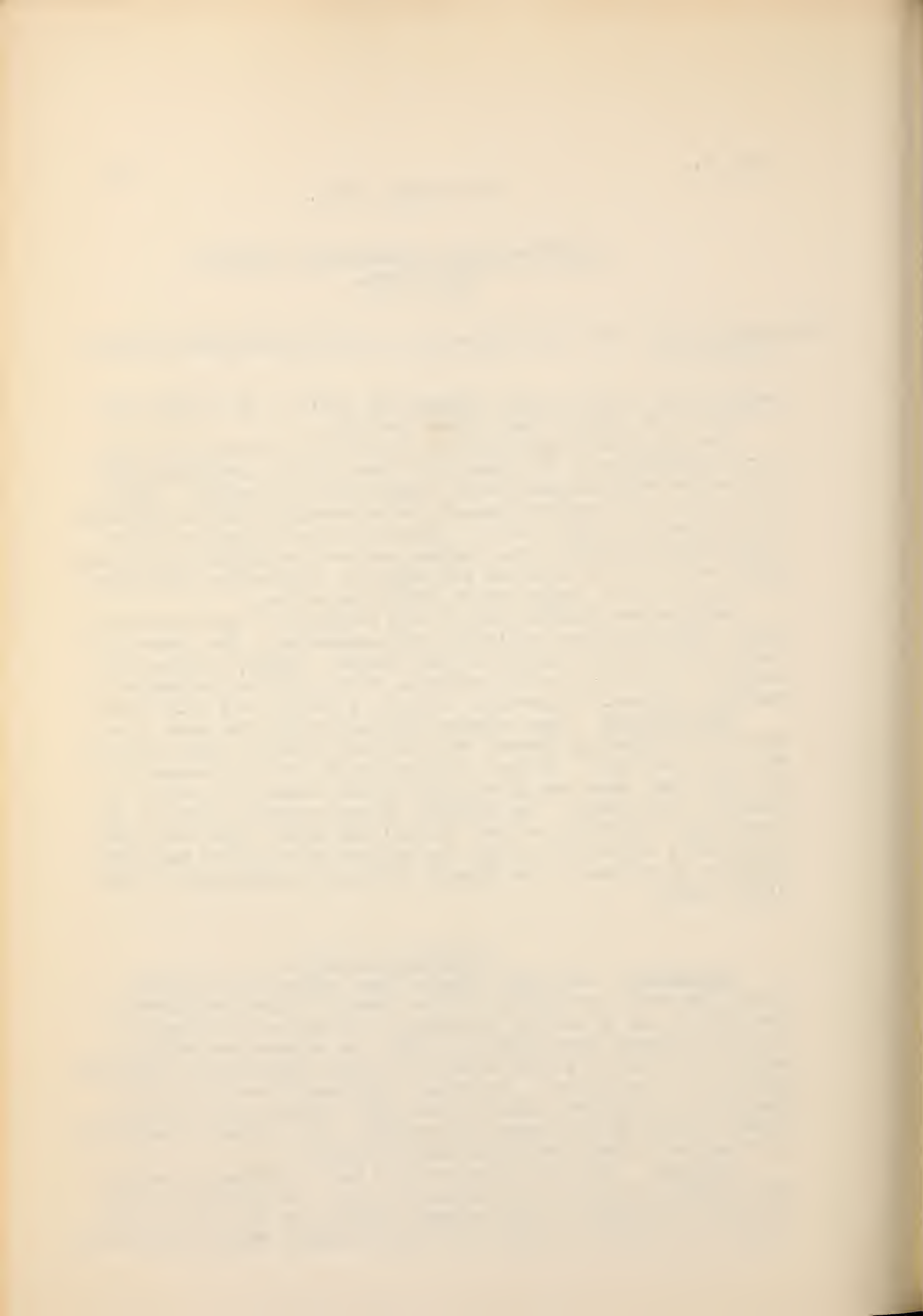
Anthrax and blackleg are of long standing on the Project and their characteristics are fairly well understood. The losses sustained are confined chiefly to beef cattle. During the year assistance has been given in connection with such minor ailments as marmitis, digestive disorders, cow pox, pink eye, and milk fever.

Herd testing. Some progress was made during the year in connection with getting farmers to test their herds for milk and butter fat production. Progress has been slow, chiefly because of the fact that there has as yet been little chance for culling out inferior individuals. The interest in herd testing, however, is increasing. Early in the year a boys' and girls' club was organized with a membership of 12. The members of this club made good progress in the use of the Babcock test and in learning to judge dairy cattle.

The Swine Industry.

Population. The swine industry made rather slow progress during the year, due chiefly to the absence of grain supplements for alfalfa and to certain marketing difficulties. The number of hogs increased from 3,815 to 4,836, the increase amounting to about 27 per cent. At the close of the year 240 purebred hogs were reported on the Project. The breeds represented are O.I.C., Poland China, Berkshire, Tamworth, and Duroc-Jersey. The leading breeds are the Duroc-Jersey and Berkshire. The former is apparently being more widely preferred than the latter.

Feeding. With the exception of a few of the large ranches where wheat and barley are extensively grown, the raising of hogs is usually confined to a few animals chiefly for the use of each family. The owners of some of the large ranches raise a large num-



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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Development of the Live Stock Industries on the Truckee-Carson Project
(continued).

ber of hogs and buy extensively from smaller growers. These hogs are pastured largely on alfalfa stubble and grain stubble. The most common hog feeds are alfalfa pasture from March 15 to November 30, and alfalfa hay the rest of the year. This forms the bulk of the ration for practically all the hogs raised on the Project. The alfalfa ration is supplemented with skim milk on dairy farms and with wheat or barley on grain farms.

Markets. Many of the hogs marketed on the Project are sold dressed, the price in 1915 having been about 10 cents, f. o. b. Fallon, with but little variation. The price for live hogs varied from 5 to 6 1/2 cents. The shipments made by the larger ranchers go chiefly to Reno and San Francisco. The freight rate per carload to San Francisco is \$70.50, which is equivalent to about 40 cents per 100 pounds.

Diseases. The loss of swine due to diseases during 1915 was negligible. Although 22 cases of suspected cholera were investigated, no cholera was found. There was some little difficulty with lice, worms, and laryngitis, the latter being confined largely to fall pigs.

Club work. In order to encourage young people in the production of swine, a pig club was organized early in the year with a membership of 12. The following table indicates the results secured by 8 club members, each having fed one pig.

Number	Pounds of Gain	Cost of feed per 100 lbs. of gain.
1	127	\$ 4.15
2	145	4.50
3	124	4.65
4	150	13.36
5	139	14.40
6	140	6.54
7	69	3.01
8	92	3.78

At the close of the season three prizes were awarded to the members of this pig club. The interest in the work was good throughout the year and the results have been very instructive.

26 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Development of the Live Stock Industries on the Truckee-Carson Project
(continued).

The Poultry Industry.

The chief interest in poultry at present is centered around the production of turkeys. During the year 1915 the number of turkeys increased from 6,972 to 12,000, the increase amounting to 72 per cent. The number of other fowls decreased from 27,399 to 22,912, the decrease amounting to about 20 per cent.

In the fall of 1914, it was found that there was no organized or systematic effort in connection with the marketing of the turkey crop. An effort was made to get the farmers to cooperate in this connection, and some progress was made. About 25 tons of turkeys were shipped out during the fall of 1914. In 1915, the work in this connection was begun earlier and the results were much more satisfactory. Visits were made to the principal poultry-buying firms in the bay district of California for the purpose of securing information as to market requirements and to interest buyers in the poultry products of the Truckee-Carson Project. A number of buyers came to the Project and a great deal of interest was stimulated in improving marketing methods. There were shipped from Fallon during the year 1915, 91,000 pounds of poultry, practically all of which was dressed and most of which was turkeys. The prices received, f. o. b. Fallon, ranged from 18 to 23 cents a pound. This does not include the poultry delivered to the adjacent mining towns by stage, nor the shipments made from Fernley and Hazen, the other two shipping points on the Project. The work done during 1915 in connection with the poultry industry has stimulated a very active, and, it is believed, effective interest in the development of poultry production.

Sheep and Cattle Feeding.

Because of the large surplus of alfalfa hay on the Project during the past two years, interest has been active in connection with the feeding of beef cattle and sheep. At the close of 1915, there were owned on the Project 5,957 head of beef cattle and 4,710 head of sheep. In addition, there were shipped in to the Project 289 cars of sheep and cattle for the purpose of wintering on the Project or feeding in transit. The prevailing prices paid for hay by outside buyers at the close of 1915 were from \$5.50 to \$6.50 per ton. The sheep that are being fed for market are being given supplements of rolled barley, furnished and fed by the owners of the sheep.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Development of the Live Stock Industries on the Truckee-Carson Project
(continued).

Marketing Dressed Meats.

During the year 1915 the express shipments of dressed pork, veal, and mutton amounted to 63,008 pounds. This is in addition to the large quantity furnished to the mining camps in the surrounding country and that used locally. The bulk of this dressed meat consists of pork, much of which has gone to the San Francisco and Oakland markets with very satisfactory results. It is believed that the production of meat, particularly pork, to be shipped dressed, warrants some promotion on the Project. In this connection, a visit was made to San Francisco and Oakland in order to secure the necessary information regarding the inspection requirements of animals not slaughtered under federal inspection. This information will be placed before the local farmers when occasion requires.

Bureau of Exchange.

One of the most effective and popular lines of work conducted during the year was that known as the "Bureau of Exchange". This work consisted of mailing to the farmers on the Project each month a list of items wanted, for sale, and for exchange, the items being reported by the farmers each month. This work was conducted for eight months, during which time 1,014 items were listed. But a very small proportion of the items were listed a second time, the circular having in most instances accomplished the desired result of bringing the buyer and seller together. After eight months of this activity, it was believed that the farmers had been taught the value of such work and the work was transferred to the local farmers' cooperative association, where it continues to be popular.

Summary.

During the year 493 farm visits were made; 1174 calls for assistance were received and answered; 458 farmers' visits were made to the office; 17 circular letters were distributed; and 8 articles were contributed to the local papers. Some of the principal subjects on which assistance was requested were abortion, 76 calls; buying dairy cattle, 198; herd testing, 188; suspected hog cholera, 22; feeding pigs, 42; impaction, 72; lice on hogs, 17; marketing poultry, 28; marketing pigs, 16; sterility in cows, 95; tuberculosis in cows, 48; and udder trouble, 112.

26 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre.

On Monday of the week ending February 12, a visit was made to the farm of Mr. Hill, near Olathe, and assistance given in testing milk and in live stock work. With Mr. Hill, visits were made to six other farms, where suggestions were made regarding pasture mixtures, hog feeding, dairy problems, and milk testing.

On Thursday, a visit was made to Delta to assist the Delta Holstein Club in their arrangements for the importation of dairy cows. Messrs. Dorman and Frevert, of the Salt Lake office of the Dairy Division, and Professor Olin stopped over on their way to Hotchkiss and gave advice regarding the proposed plan. The Delta business men are interested in perfecting the arrangements whereby each will obtain a purebred Holstein cow of good quality, the object being to improve the standard of dairy cows on the Project. It is their plan to import 100 springers.

In order to further confer with Messrs. Dorman, Frevert, and with Professor Morten, the State Dairy Commissioner, the trip was made with them to Hotchkiss, where they were to take part in the creamery meeting and institute. These men returned to Montrose for a meeting in this office on Monday, February 14, with the creamery men of the Western Slope. The problem of marketing dairy products will be taken up at that time.

Huntley.

During the week ending February 12, a bull club was organized on the Project. The club consists of four members who purchased a purebred Holstein bull from the Montana State College.

Several farmers recently agreed to ship their hogs cooperatively to the Omaha market. A sufficient number of hogs were obtained to make up a car. The car was ordered and part of the hogs in the yards ready to be loaded when it was discovered that some of the farmers had sold their hogs to a shipper who was shipping hogs from Billings on the same day. This broke up the shipment and compelled those farmers who had not already done so, to sell to the shipper at practically his own price. The hogs brought from \$5.75 to \$5.90 per cwt. Such termination of the farmers' efforts to get together is to be regretted, occurring as it does just as the cooperation idea was getting a good start.

26 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

Two farm institute meetings devoted to discussing dairy subjects were held on the Project during the week, February 11 at Osborn, and February 12 at Ballantine. Professor G. F. Martin, of the Montana State College, delivered a very instructive lecture at each meeting.

The subject of cheese factory was given attention by both Mr. Martin and Mr. Christopher. Several of the farmers present expressed themselves as being in favor of establishing one or more cooperative cheese factories on the Project and organization agreements were left in the hands of a few interested farmers who will endeavor to see if the dairymen in the vicinity of Osborn and Ballantine will support such a proposition. At Ballantine, a number of those present signed up for several shares of stock at \$25.00 each before leaving the hall. Twenty-three farmers were present at Osborn and thirty at Ballantine.

Sentiment in favor of a cheese factory at Ballantine has developed rapidly. At a meeting held at Ballantine on Saturday, of the week ending February 19, it was found that \$2000 had been subscribed and 106 cows pledged for a cheese factory to be established at this place. It is expected that double this number of cows will supply milk to this factory as soon as it is started. A temporary organization was affected and steps taken to organize a cooperative organization according to law. An effort will be made to get this factory in operation by early spring.

Recent examination of a number of cows to ascertain the cause of sterility has shown that in some instances the cows fail to conceive because of a rigid closure of the mouth of the womb. Except in cases of this kind our disinfecting treatments are giving good results.

Boise.

What many report as the heaviest snow seen in this part of Idaho fell during the week ending January 30; about two feet fell on the level at Caldwell. Trains were almost completely blocked for the greater part of three days and service has been irregular all week. Country roads have been almost impassable and very little field work has been attempted.

The report on pastures on the Boise Project which was requested last fall was submitted this week.

26 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Boise (continued).

The Forest Supervisor of the Boise National Forest was visited on Friday. The range on the Boise forest has been completely taken up this year, if all the permits issued are used, and a great many applications were rejected. New applicants were admitted with 50 head only. There are two large owners on the range who have a priority claim to the range and who cannot be cut down over 10% per year. Even with these men entirely eliminated the Boise Forest will not be of great benefit to Boise Project settlers as there is room for only 4000 cattle on the forest and those living closest to the range are given preference.

Permits for about 500 head of cattle in the Boise Valley, on or near the Project, will be issued this year. Some of the men owning stock are anxious to form an association this year, not so much for the benefits to be derived at this time as with the idea of using the influence of the association to secure a larger reserve in another section. A meeting was held with a few of them at Meridian and the 19th was set as a date for a meeting of every one interested when it is hoped an organization can be perfected.

The week ending February 12 was largely spent in looking into the hog-house situation with Mr. Ashby, of the Office of Public Roads and Rural Engineering. Mr. Ashby is preparing a report of conditions found.

Roads have been extremely bad on account of the melting of the heavy snow of last week. There is no frost in the ground which has become saturated and the mud is very deep. High water stopped car service between Caldwell and Boise for a day, some track having been washed out. Service was resumed on Saturday.

A call was received on Monday to inspect a herd of purebred Berkshires belonging to Mr. Dille near Caldwell. Five hogs had died and others were sick. The case did not appear to be cholera and the State Veterinary Department was called. Deputy J. D. Irwin pronounced the case Septicemia. There has been some further loss.

North Platte.

During the week ending February 5, six farmers were assisted in planning hog houses. Four of these were colony houses.

On account of office work that needed attention and on account of bad weather, practically the entire week was spent in the office.

26 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte (continued).

A farmers' meeting was attended in Mitchell. Notices of coming farmers' meetings were sent out and the last of the hog feeding reports were made out and sent in.

Mitchell Community Club.

On December 1, 1915, a number of the Mitchell business men and a few farmers met during the noon hour for the purpose of having a social dinner. The dinner was well attended, and matters of interest to the community were brought up for discussion. On account of the success of this dinner it was decided to hold one every Wednesday and call it a Community Club dinner. Following out this suggestion, arrangements were made with the local hotel for serving these dinners at 25¢ per plate.

These dinners are rapidly growing in popularity among the farmers and business men. The room is always crowded, as many as 74 men having attended on one occasion. On account of the growing popularity of the dinners it is now necessary to get a larger room.

At least one-half of those that attend these meetings are farmers. There is no organization connected with this affair, and any one is welcome. A temporary chairman is elected at each meeting to conduct the business session that follows the dinner. While these meetings last only one hour, it seems that much good is going to come from them. They bring the farmers and business men together, bring about a better understanding, and tends to foster a community spirit. Road improvement is a matter that is receiving attention at these meetings, and considerable definite work has been done along this line. Other important matters have received attention. It is probable that a formal organization will be perfected within a short time.

Shoshone.

During the week ending February 12, 7 farms were visited, 9 calls were received at the office and 11 other conferences were held. Two herds including 6 cows were tested; four articles were written for the local papers. One hog feeding test was started to determine the cost of feeding fall pigs through the winter. Milk testing demonstrations were given to each of the three milk testing clubs.

26 February, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton.

The work during the week ending February 12 was devoted to arranging data collected during the past season into suitable form for the annual report, 20 office conferences with farmers, and practically two days time at the local Farmers' School.

The State Extension Department furnished the best material available for the work and local successful farmers also took part in the program. The total attendance for the four days was approximately 1800, including about 100 each day at the Home Economics meetings held in connection.

It was difficult to estimate the number of Tieton farmers present during the school, but from 10 to 20 were counted during each half-day session and the number of office callers was unusually large. The Cowichew Improvement League has asked for a somewhat similar two-day school sometime this month. Mr. Lashbrook, of the U. S. Dairy Division and the State College, has been secured to help at this school.

VOUCHERS.

The advisability of field men retaining in their office files copies of all reimbursement vouchers and subvouchers is suggested. Occasionally a question comes up as to whether or not an item has been paid under subvoucher, and as no record of these items is kept anywhere in the course of audit until the voucher lodges in the Treasury Department, it is extremely difficult to trace payment. It is presumed that the field men are now retaining copies of other forms of vouchers.

TRAVEL.

The auditors are now requiring that reimbursement vouchers shall indicate the mode of travel in all cases where subsistence is charged and there is no charge for transportation. This applies to travel by private or government conveyance, and in all cases subsistence items should be followed by the proper explanation, as, for instance, "By government automobile."

4 March, 1916.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

During the week ending February 19, the maximum temperature was 76; minimum temperature, 27; and greatest daily range, 40. There has been no precipitation for the last month, and winter crops are showing the need of moisture.

Field work was possible throughout the entire week. Plats B6-13 and 14 were plowed and plats B6-15 and 16 were plowed and subsoiled. The oats on one-half acre in the oat pasturing experiment with steers were plowed out to put the land in condition for planting to Sudan grass later. Flowing of fields A3 and B3 was completed. All plats in the rotation experiments to be planted to corn were harrowed the latter part of the week to get the plats in condition for planting corn the first part of the following week.

Messrs. H. E. Savely and M. T. Payne, of the Farmers' Co-operative Demonstration Work, visited the farm on the 15th of February.

Truckee-Carson.

Steps have been taken to secure the measurements of a large number of hay stacks together with baling weights, by cooperation with some of the balers about Fallon and in the Fernley District. The data will include the dimensions of the stack, width, length and overthrow; shape of end view of stack; 1st, 2nd and 3rd cuttings; date of stacking; date of measurements; manner of stacking, whether by hand, hayfork, or sling; weight of bales. Much hay is sold on the Project by measurement and the object of the proposed determinations is to ascertain as nearly as possible the most accurate system of measurement for alfalfa hay.

Field work is again possible. One man with four horses has been leveling a new field south of field B, and another man has been manuring the various plats of field A. Work of building irrigation and drainage boxes was also begun. The fence posts about the office buildings and along the road are being whitewashed.

4 March, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley.

Sugar Beet Contracts for 1916 in the Billings
District.

The Billings Sugar Company has announced that, because of the shortage of beet seed, only 12 pounds of seed per acre will be furnished in 1916, and that this amount will take the entire supply, so that there will be none for re-seeding. Because of this, the company will accept contracts only where it is known that conditions are favorable, in order to increase the tonnage of the acreage planted. This rule, however, will not be applied to the heavy soils in the Worden-Newton districts on the Huntley Project, because of the fact that the growers there do practically all of their own work and are able to make a fair profit, even with comparatively low yields. The company will pay the same prices as in 1915, except that the prices paid for siloed beets will be increased from 75 cents to \$1.00 per ton.

Yields of Sugar Beets on the
Huntley Project in 1915.

From a detailed statement of yields and values of sugar beets on the Huntley Project in 1915, furnished by the Billings Sugar Company, the table on the following page was compiled. In this table the project is divided into eight districts, or loading stations.

4 March, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

Factory Districts	Farms Reported				Yield per Acre (tons)		
	No.	Beet Acreage		Total yield, tons	Maximum	Minimum	Average
		Total	per Farm				
Pompeys Pillar	21	276	13.14	2,752	13.40	4.79	9.97
Anita	27	399	14.79	4,650	14.75	5.18	11.65
Watts	13	143	11.03	1,612	13.67	6.98	11.21
Newton	19	365	19.21	3,142	15.67	4.83	8.61
Guernsey	53	896	16.91	8,479	15.38	2.64	9.46
Ballantine and Worden	117	1,726	14.75	18,214	16.84	2.70	10.55
Osborn	88	1,193	13.56	10,731	15.80	1.71	8.99
Huntley	26	503	19.33	4,870	15.56	4.38	9.68
Entire Project	364	5,501	15.12	54,450	16.84	1.71	9.85

Factory Districts	Value						
	Per Ton			Gross.	Per Acre		
	Max.	Min.	Average		Max.	Min.	Average
Pompeys Pillar	6.71	5.91	6.22	\$17,116.25	80.08	30.12	62.01
Anita	6.35	5.72	6.04	28,083.55	89.77	29.61	70.38
Watts	6.97	5.80	6.34	10,225.09	101.77	46.95	71.50
Newton	6.69	6.04	6.35	19,967.87	98.59	30.87	54.71
Guernsey	6.96	5.73	6.24	52,921.10	92.51	16.58	59.06
Ballantine and Worden	6.90	5.51	6.14	111,862.62	105.29	18.07	64.81
Osborn	6.66	5.40	6.14	65,892.54	96.14	10.84	55.23
Huntley	6.47	5.09	6.10	29,710.15	96.16	27.92	59.06
Entire Project	6.97	5.09	6.16	335,779.17	105.29	10.84	61.04

The table shows that beets were sold from 364 of the 560 farms in operation on the Project, and that there was a total of 5,501 acres. The total yield was 54,450 tons, which had a gross value of \$335,779.17, or an average of \$922.47 per farm. The average yield per acre was 9.85 tons. The value per acre ranged from \$105.29 to \$10.84 per acre, with an average of \$61.04. The highest yield, 16.84

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

tons per acre, was obtained in the Ballantine district. This yield was an average of 32 acres. Both the yields and returns per acre were slightly higher than in 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Huntley.

THE DEVELOPMENT OF LIVE STOCK INDUSTRIES
ON THE HUNTLEY PROJECT IN 1915.

The following is a summary of a report made by Mr. Carl Christopher covering his work in live stock industries on the Huntley Project in 1915. The work is devoted to dairying and swine production. Cooperation is had with the various divisions of the Department of Agriculture, with the Montana State Agricultural College, the State Veterinary Department, and the local office of the Reclamation Service.

The Dairy Industry.

Population and breeds.— The number of dairy cattle on the Huntley Project increased from 992 to 1507 head during the year 1915, the increase amounting to about 63 per cent. These cattle are owned by 288 farmers.

The Holstein is the predominating breed, although there has as yet been no breed standardization on the Project. Considerable difficulty has been experienced with sterile cows. Disinfection of the cows' wombs with a one-half per cent solution of liquor cresolis has produced satisfactory results in several instances.

Feeds. The principal feed used is alfalfa hay. A few farmers supplement this with sugar beets and beet tops during a part of the year and some beet molasses is fed. Practically no grain is used. There is a growing tendency to provide irrigated pastures. During the year efforts were made, in cooperation with the Huntley Experiment Farm, to interest dairymen in the establishment of irrigated pastures. As a result, it is expected that as much as 100 acres of mixed grass pastures will be seeded in the spring of 1916,

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

in fields of 4 to 10 acres, well distributed over the Project. There are no silos on the Project at present, but it is expected that a few will be erected during 1916.

Marketing. Creameries within a radius of 150 miles of the Project furnish the principal market for cream. When butter fat prices are low, large quantities of butter are made on the Project and sold at local stores. From 300 to 400 gallons of sweet cream were marketed monthly at hotels and restaurants in Billings during 1915. Occasionally some whole milk is marketed in Billings. Definite information was obtained regarding the marketing of \$21,829 worth of dairy products during the year. The price of butterfat varied from 22 cents in June to 33 cents in December. During July and August a premium of about 6 cents per pound of butter fat was paid for the sweet cream purchased by the creameries. The sweet cream sold to hotels is sold at \$1.00 per gallon and the whole milk at 15 cents per gallon.

Field Work. Since April 1, 1915, production records have been started in 16 herds, containing an aggregate of 114 cows. This work is still in progress. Blackleg treatment was applied to 69 head of dairy cattle during the year, and to 119 head of beef cattle. Additional field work in connection with the dairy industry has been directed towards improved methods of feeding, including the use of pastures, the use of better bulls, and encouragement towards the establishment of a cheese factory. Up to December no cheese factory was established but the prospects were promising.

The Swine Industry.

Population and breeds. The swine population increased from 4612 head in 1914 to 4866 head in 1915. About 300 farmers are now raising hogs. The increase during the year amounted to only about 5 per cent of the 1914 population. This small increase was due chiefly to low prices for hogs and high prices for grain. The principal breeds represented on the Project are Duroc-Jersey and Poland China, although there are representatives of several other breeds. The general tendency in breeding is to pay too little attention to the quality of the sire and dam. The importation of improved breeding animals is being urged. Breeding is commonly done very carelessly so that farrowing takes place at various times of the

4 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS
Field Notes.

Huntley (continued).

year. This results in ununiform herds which are seldom graded and fed separately. This makes the proper feeding and care of the whole herd very difficult. It is not a common practice to raise two litters per year, but this could just as well be done if adequate housing facilities were provided.

Feeding. Conditions on the Project are favorable for producing swine cheaply, particularly through the use of alfalfa pasture supplemented with dairy by-products and waste material. Straight grain feeding for long periods is not profitable at present prices. Seven swine feeding tests were conducted during the year. One of the chief results of these tests was conclusive evidence of the efficient use which hogs can make of cheaply produced crops and of waste crop products.

Marketing. Most of the hogs are sold locally and usually marketed in Billings at relatively low prices. During November and December, 1915, however, 17 farmers cooperated in the shipment of three carloads of hogs to the Omaha market, receiving very satisfactory results. The total cost of marketing these three carloads was, respectively, \$1.05, \$1.12, and \$1.20 per 100 pounds, of which the freight rate was 51 cents. From July 1 to the end of the year, a total of 24 cars of hogs were shipped from the Project.

Diseases and pests. The hogs were remarkably free from diseases during the year. A few cases of cholera in a very mild form occurred on the Project during the summer but the disease was quickly and easily controlled. Forty-four cases of suspected cholera were investigated during the year, but it was necessary to treat only eight herds. In these eight herds, 305 hogs were treated and only 5 died following treatment. A few herds were found to be infested with lice. Treatment for lice was applied in 6 herds, including 156 hogs. There is an occasional loss from rheumatism, for which several hogs were treated during the summer.

MISCELLANEOUS LIVE STOCK.

While dairying and swine production are the leading live stock industries on the Project, there is some interest in other live stock industries. At the close of the year 1915 there were on the Project 1809 head of beef cattle, a decrease of about 200 head during the year. These beef cattle were held on 140 farms. During the year the number of sheep on farms increased from 847 to 6198, the number of farmers having sheep increasing from 4 to 17. About 62 per cent of the 526 farms on the Project reported the ownership of fowls, and about 10 per cent reported bees.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

SUMMARY OF WORK.

From March 1 to the end of the year, 414 farm visits were made; 108 calls for assistance were received and answered; 101 calls were made at the office; 5 meetings were held, with a total attendance of 230; 2 circular letters were distributed, and one newspaper article was published; and 16 dairy herds, including a total of 114 cows, were under test. Cooperative swine feeding tests in 7 herds were completed during the year.

Truckee-Carson.

During the week ending February 19 there were received 25 calls for assistance and sixteen visits were made to farms.

The snow has disappeared and much plowing and leveling has been started by the farmers.

The local creamery has just served notice to its patrons that after March 1 they will pay a premium of 1 cent per pound of butter fat above quotations for San Francisco "specials", (their regular price) for cream delivered sweet and testing 32% or over. Heretofore, there has been no such effort by the creamery to stimulate the production of first class cream.

There seems to be every assurance that the local beet sugar factory will operate this year. The opening of the factory is expected to increase business in the Valley.

Boise.

Meetings of various kinds occupied the greater part of the week ending February 19. As a result of a meeting of forest supervisors at Shoshone, all Project farmers owning improved land and not to exceed a certain number of stock were placed in "Class A" regardless of distance from the forest reserves.

On three days this week there was held a conference of agricultural organizations of the State, under the direction of the State Department of Farm Markets. Market conditions and market problems were the principal subjects for discussion. A State "federation" of agricultural interests was started. Among resolutions passed by the conference was one disapproving of the 640-acre Homestead bill.

4 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Boise (continued).

On February 19, a meeting of cattle owners was held at Meridian, and a cooperative grazing association was begun. The meeting adjourned for one week.

Farmers' Institutes were held during the week at three points, three days at each place, each speaker putting in one day at each place. These meetings were put on by the Extension Department of the State University.

Uncompahgre.

Eight farm visits were made during the week ending February 19. On account of the good roads and good weather the travel was done in the machine.

A hog feeding test was started, including 39 hogs, which are being fed a mixture of wheat and oats with what alfalfa hay they will clean up. These will be weighed twice each month.

A visit was made to a farm near Olathe, where 500 head of cattle are being fed corn silage and alfalfa hay. The feeder has a silo of 500 tons capacity. Another farmer was visited where corn silage is used in feeding 175 pigs, which are receiving daily one pound of wheat each in addition to all the silage that they will eat. It was reported that the gain had been one pound per day under this system.

On the same farm there are three acres of pasture. The grass mixture used was orchard grass, timothy, Kentucky blue grass, and red top. During the summer of 1915 this pasture supported 6 head of cattle.

During the week ending February 26 10 farm visits were made, and 2 pig clubs were organized with 12 members.

Two men were consulted relative to pasture mixtures. One farmer is planning to put in 12 acres of pasture on new land. Another plans to plant a field of 10 acres. Loesch Bros.' farm was visited, and their pasture was investigated. Twenty-five acres were seeded in the fall of 1914 to a grass and alsike mixture. It carried one head per acre during 1915. Owing to shortage of water and heavy pasturing, this pasture did not do as well the first year as it should.

Three farmers on the Project are finishing steers on corn silage and alfalfa hay. In one case 65 head are being fed and in another

4 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

er 51 head. The feeding was started December first. In each case the gains have been rapid and the steers are well finished. Weights have not been kept in either case. The gains are due largely to the high percentage of grain in the silage. In each place hogs are following the steers and are making good growth.

Considerable corn is being received and sold to the farmers for feeding hogs, the price being 1.75 per cwt. Wheat is bringing \$1.65. Butterfat is 27 cents. Potatoes bring \$1.15 per cwt. Many potatoes have been sold during the last few weeks. The highest price quoted for potatoes was \$1.40, two weeks ago. The hog market at Denver this week was topped at \$8.25 for two lots of hogs. There are only a few hogs ready for market at present on the Project.

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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Yuma.

During the week ending February 5, the maximum temperature was 71; minimum temperature, 29; and greatest daily range, 39. The precipitation amounted to .01 inch.

The Gila River was again at high flood, the overflow water passing through the breaks made in the Colorado River levees the previous week, and again covering nearly the same flooded area of the week before. There was no further loss of livestock or feed from this second overflow, but alfalfa and winter grains were damaged in being covered again for a number of days. Only ten acres on the Experiment Farm were flooded this time.

Tree growth measurements were made of eucalyptus plantings about the farm and fruit trees in orchard B 23 to 32. The earliest varieties of peach trees are already flowering.

Pruning was begun in the variety deciduous orchard. Cotton stalks were cut and the tree middles on B 27 and 28 were plowed. Eucalyptus rudis trees along road plantings were pruned.

Varieties of grapes were transplanted from the nursery A-10-1 to plot A-15-6, which is now taken up entirely by grape varieties.

Alfalfa was harvested for hay from fields B-6-7 and 8, C-23 and E-7.

Excavating was completed for a basin to settle ditch water to be pumped and used for propagation work. This will be lined with a four-inch concrete wall.

During the week ending February 12, the maximum temperature was 84; minimum temperature, 36; and greatest daily range, 48.

Five acres were irrigated.

The pruning of the deciduous variety orchard and also grape and berry plantings was completed.

Gravel and cement were hauled for lining the settling basin now under construction.

Fallow fields C-42 to 45 and D-41 to 43 were disked and dragged. Sweet corn was planted on A-14-7 and potatoes planted on A-14-1. The melon plantings on A-2 are coming up nicely and were hoed.

A well was driven and a shade erected in the hog pasture on E-8. An alfalfa pasturing test of hogs was started on this pasture February 9. The pasture on E 8 is one-quarter acre in area divided into two lots for pasturing. Six pigs, averaging 59 pounds each were placed on this pasture to be fed two per cent supplementary grain ration of cracked milo. Three days' weights were averaged as the initial weights. These pigs were from two litters of Poland China by Duroc-Jersey cross, four sows and two barrows.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma (continued).

During the week ending February 19 the maximum temperature was 86; minimum temperature, 43; and greatest daily range, 41.

Twenty-nine acres were irrigated.

Twenty-three hundred straw berry plants of the following six varieties were received and set out on A-13-7:

Arizona Everbearing	Clark
Marshall	Early Ozark
Magoon	Wilson

The following varieties of potatoes were planted to A-14-1: Red Rose, White Rose, Harvest King, Irish Cobbler and Early Ohio.

Plats A-13-6 and D-14 were prepared and planted to "Irish Cobbler" potatoes. Plats A-14-1 and A-13-6 were thoroughly mulched with old hay and straw after planting.

Asparagus on A-13-8 and fallow lands A-10-2 and A-10-7 were manured.

Early flowering seedling date palms are beginning to blossom.

A new gravel pit has been located within reasonable hauling distance of the station that offers very good gravel for concrete work. We are hauling a supply of this whenever time permits for the making of concrete fence posts at odd times.

Brush clearing was begun on E-10 to 14. The leveling of the new lands, C-1 to 5 and D-1 to 5 is sufficiently complete to apply the first irrigation.

San Antonio.

During the week ending February 26, the maximum temperature was 82; minimum temperature, 37; and greatest daily range, 44. Dry weather continued throughout the week and winter crops are suffering severely from drought.

Corn was planted on the rotation plats on the 21 st. Even though there has been no rain for several weeks, there is sufficient moisture on nearly all plats, it is thought, to germinate the corn.

The greater part of the week was spent in fence building. The woven wire fence on the east side of the farm beginning at the Cemetery road and extending to the sewer outfall was completed. Post holes were dug preparatory to building a fence to inclose fields D4 and D5 which are now in Johnson grass. It is thought that by pasturing the Johnson grass on these fields, preventing it from seeding, it will be possible to more easily control the Johnson grass in the cultivated fields.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio(continued).

Mr. Hastings returned to the farm on February 20, but left for Sacaton, Arizona, the latter part of the week.

Behavior of Winter Crops.

In a letter recently received from Mr. Hastings, the following comments are made regarding the behavior of winter crops during the past three months:

"It certainly has been an ideal winter for observing the hardiness of the flax and field-pea varieties, and the results obtained from these tests even thus far are extremely interesting. The weather conditions this winter have been quite different from those that are usually to be expected. It has been unusually dry, and the month of January was considerably warmer than usual. The peas, oats, and flax made a good growth early in January, but were severely injured by two freezes occurring during the latter part of the month. This furnished just the sort of conditions that I have been looking for, as it gives us an opportunity to study the hardiness of different varieties of flax and peas. It seems that the Golden Vine variety is only about an average variety as far as hardiness is concerned, and about eighty per cent of the plants were killed. The Grey Winter came through with absolutely no injury, and the Kaiser, while the tops of the plants were injured, very few were killed, and this variety comes next in hardiness to the Grey Winter.

"It is interesting to know that both the Grey Winter and Kaiser varieties were among the best tested last winter. The Agnes variety comes next in hardiness and next is the Andes. Some plants of the former were killed and about fifty per cent of the latter killed. The varieties that were killed outright were the Partridge, Delano, French Grey, and Blue Bell. The field plantings of the Golden Vine were as severely damaged as the same variety in the variety test.

"Another point brought out in the various plantings of peas that is worth noting is that the time of planting this season does not seem to have influenced the injury done. The later plantings were about as severely injured as the early plantings of the same variety, while usually that is not the case. I am still strongly inclined to my former recommendations, however, as I believe the dry weather makes the plants somewhat more susceptible to cold. You perhaps recall that we observed this apparently was the case with oats last fall when the tops were frozen at a temperature of 26 degrees, when they are supposed to stand much lower temperature than this.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued).

"The difference in hardiness of the flax varieties were equally as striking. In the plat tests, Cl-13 was practically uninjured and Cl-20 and 30 were but slightly injured. Cl-36 was killed almost outright. In the individual row test, Cl-25 was but little injured, while Cl-16, 18, 19, 27 and 3 were somewhat injured but will come through. Cl-24, 30, and 39 were quite severely injured, and Cl-21 was killed outright.

"In the time-of-planting test of flax the last planting made January 5 appears to be killed outright, and the first planting made October 15 was quite severely injured. The planting that appears to be in the best shape is the third, made November 15.

"The pasturing experiments are coming along very satisfactorily. The steers continue to do well and the pigs are doing slightly better than they were when Mr. Letteer last reported. The feed is getting rather short, especially the plats where the steers are located, but considering the dry weather the pasture has held up remarkably well, I believe."

During the week ending March 4 the maximum temperature was 30; minimum temperature, 33; and greatest daily range, 43. There was no precipitation and there has been none since the latter part of January. It is getting very dry and growing crops are suffering severely. The entire winter has been dry, the total precipitation since October 1 having been only 6.17 inches.

The farm orchards which do not have field peas planted in them were double disked during the week. Messrs. Brown and Bryan, of the Office of Corn Investigations, spent several days at the station and completed their work of planting corn.

Soil samples were taken on the corn plats in the rotation experiments.

Corn planted on the rotation experiments on February 21 came up about the middle of the week. The corn germinated much more quickly this year than is usual. The peach and plum trees on the station are in flower. A comparison of notes taken this year with those made last year shows that the peach and plum trees are practically two weeks later in flowering this year than last.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Shoshone.

COOPERATIVE GRAZING IN 1915.

At a recent meeting, the Shoshone Livestock Association concluded its business for 1915, and discussed plans for 1916. This association was organized in 1915 by some of the project farmers for the purpose of grazing cattle cooperatively in the Shoshone National Forest. The President, Vice-President, Secretary-Treasurer, and Directors served without pay. The officers expressed appreciation of the consideration shown by the local forest Supervisor and his subordinates.

During 1915, 386 cattle owned by 37 farmers were handled by the association. For the coming season, 350 cattle have already been promised, and it is estimated that there will be at least 400. Seven bulls were sent with the herd last year, 3 grade Shorthorns, 2 grade Herefords, one a mixed Durham and Holstein and one a registered Red Poll. They were furnished by individual farmers who owned them. For the coming season, it is the plan for the association to buy bulls.

Last year 32 cents per head was paid as a grazing fee which allowed grazing from May 1 to October 22, but as it has been found that it is not possible to get to the range before June 1, a permit will be secured this year covering the period from June 1 to October 22, for 24 cents per head.

Last season the herder was hired by the month. He furnished the equipment used in herding and boarded himself and his horses. He was paid for six months work. The association bought the salt, 2500 pounds at \$1.50 per cwt., and it was hauled to the range by the owners who assisted in taking the cattle to the range. The 12 men who assisted in taking the cattle to the range were gone from home for 10 days and received no pay. The cost for the season besides the permit was \$3.00 per head. For the coming season there have been four applications by herders to receive the cattle at the edge of the project, furnish everything and deliver the cattle in the fall at the edge of the Project for 50 cents per head per month. In this case, however, the herder would not be responsible for losses of cattle by death. Last season the cattle were in charge of the herder about six months, from May 1 to the last of October. They were taken out May 1 onto a range just off the project and were pastured there for about a month before they were taken to the reserve, where they arrived June 1. There was plenty of feed all the way up, but the weather was bad. As the drive was about 80 miles, considerable difficulty was experienced with the

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

weaker stock. During the season the immature cattle made an excellent growth but did not fatten much, while the mature stock fattened well.

The cattle were brought back to the Project the last of October. It is thought that they should have been brought back three weeks earlier. Sheep and other cattle which had come out of the range earlier had consumed all of the feed along the way so that the Project cattle were on the road three days without feed. After they were brought onto the Project they were held for two nights and one day without feed while they were being sorted. Such poor care caused a very heavy shrinkage, though the cattle recovered better than was expected.

The plan for the coming season, if the pasture along the road is poor, is to haul a load of baled hay for the cattle as far as the roads are good, so as to give them a feed after two days drive.

Last season, insurance was provided at 1 per cent on the following valuations: calves \$20.00; yearlings, \$30.00; two-year-olds \$40.00; and three-year-olds and over \$50.00. Twenty-two cattle in all were lost, ten having died of poison, five of weakness on the road to the range; and seven having strayed. The total loss amounted to about \$700.00, of which \$200.00 was covered by the insurance which was prorated on the losses. For the coming season it may be that no insurance will be provided because it was found that there was a tendency to send weak animals to the range when they were insured. However, the officers of the association will be urged to provide insurance, and to arrange for adequate inspection of cattle before the latter are accepted

THE DEVELOPMENT OF LIVE STOCK INDUSTRIES ON THE SHOSHONE
PROJECT IN 1915.

The following is a summary of the report made by Mr. Don G. Magruder, regarding the development of live stock industries on the Shoshone project in 1915. In the field work on this Project cooperation is had with the various divisions of the Department of Agriculture, with the University of Wyoming, and the local office of the Reclamation Service.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone.

The Dairy Industry.

Population.- The number of dairy animals reported to the Reclamation Service at the close of 1915 was 1,745. Special reports regarding dairy cattle at the close of 1915 were received from 149 farmers, of whom 15 reported no dairy stock. The remainder reported 791 head, of which 537 were females of breeding age. Of the 149 making special reports, 92 reported regarding the predominating breed. Of these, 31 reported Holsteins; 30, shorthorns; 24, Jerseys; 2, Guernseys; 2, Red Pole; 2, mixed; and one Ayrshire. Apparently about equal numbers of Holsteins and shorthorns are kept on the Project, and Jerseys are a close third.

Feeds.- Previous to 1915 the chief feed for dairy cattle was alfalfa hay, but during that year interest developed in silos. Nine silos were constructed. Several farmers grew some corn fodder for feed for cows. There is a growing interest in mixed grass pastures. Some use is made of sweet clover pastures, but the results are not wholly satisfactory, there having been several serious cases of bloat, and the cows apparently not relishing sweet clover. A large portion of the 1200 acres of beet tops were pastured by cows during the fall of the year with satisfactory results. There is some tendency to feed beet molasses when the supply of beet tops is exhausted. Some little grain is fed. The principal field work done in connection with feeding during the year related to the construction and use of silos.

Marketing.- Practically all of the cream produced on the Project is sold either to the local creamery or shipped to Billings, Montana. The local cooperative creamery handled about \$20,000 worth of cream during the year, and approximately \$7,800 worth was shipped out. The butter made by the local creamery was marketed chiefly in Billings. The prices paid for butter fat during the year ranged from 23 cents in July to 30 cents in December.

Breeding.- Special attention is being paid to herd improvement, with particular reference to the use of high class bulls. There are at present 9 registered dairy bulls on the Project. The owners of two small herds of registered Holsteins have so far been able to sell all their bull calves for breeding purposes. Some difficulty has been experienced with abortion, and this has resulted in complications in connection with neighborhood breeding work.

The farmers are endeavoring to improve their herds by culling out poor cows, and there is a growing tendency to use the scales and Babcock test. However, as cows are scarce and feed relatively

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Field Notes.

Shoshone (continued).

cheap, the improvement of herds through the elimination of inferior cows progresses slowly. Complete milk and feed records are being kept with four farmers. A large number of other farmers have had some testing done and the interest in herd testing is good. Three milk-testing clubs, having a total membership of 18, have recently been organized and are receiving instruction in testing and in keeping milk and feed records.

Shelter.- On many of the farms no shelter other than a straw shed is provided for the dairy cows. As the farmers become better off financially they intend to provide better shelter. During the year 6 barns or sheds have been built or rearranged, in accordance with plans furnished to the farmers. Interest in better buildings is good.

Diseases.- Tuberculosis is unknown. There have been many abortions but no positive diagnosis of contagious abortion. However, the farmers are urged to treat all cases of abortion as contagious, particular attention being paid to the sanitary measures and to care in connection with the use of bulls.

The Swine Industry.

Population and breeds:- The number of hogs on the Project increased from 4,679 in 1914 to 5,767 at the close of 1915, the increase amounting to about 23 per cent. The average number of hogs per farm at the close of 1915 was 11.6 for all the 498 farms on the project. The breeds represented are chiefly Duroc-Jersey, Hampshire, and Poland China. A fairly large number of these are pure breds. The Duroc-Jersey is by far the predominating breed. As a rule the swine on the Project are well bred. Practically all the boars used are pure bred and many of them are registered. A too common tendency on the Project is to allow the boars to run with the sows at all times, so that farrowing takes place throughout the year, resulting in ununiform herds. However, many of the farmers manage their breeding in a much more satisfactory manner. The general tendency is to have but one litter a year, although a few farmers raise two litters. In connection with the breeding problems, the farmers are urged to adopt one breed for the entire community and there is evidence that the Duroc-Jersey will be adopted.

Feeding.- Alfalfa pasture is the principal feed. It is supplemented usually with a light ration of grain. Some farmers, however, feed no grain at all in connection with alfalfa pasture. Many

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes.

Shoshone (continued).

of these sell their hogs as stockers during the fall of the year, or finish them quickly after the grain harvest. The grains used are principally wheat and barley, with occasionally a small amount of oats mixed with one of these. Some corn is shipped in for feeding. The small grains are practically always ground and are usually fed dry. Much of the grain is fed in the bundle. Self-feeders are widely used, particularly during the finishing period. Some tankage is used.

Marketing.- During the fall of 1915 a few carloads of hogs were sold as feeders to the Nebraska farmers, but most of the 23 carloads shipped during the year were sent to the Denver market as finished hogs. The farmers who sold their hogs as feeders received 6 cents a pound. The average price received for the 23 carloads was estimated at \$5.33 per 100 pounds, f. o. b. Project points. The entire cost of marketing hogs in Denver amounts to \$1.25 per 100 pounds, though some farmers have marketed them for as little as \$1.15 per 100 pounds. The freight rate to Denver is 40 cents per 100 pounds. The total value of the hogs shipped during 1915 was \$24,000, as compared with \$14,000 in 1914. Some hogs are sold to the local butchers and many are butchered for use on the farms where they are grown. Because of lack of storage facilities the local butchers do not buy a large number of hogs, but import cured meat instead.

Diseases.- There was no cholera on the Project in 1915. On one farm several hogs died suddenly but investigation proved that they had been poisoned by eating young cockle burrs. A few herds were treated for lice. On the whole, the health of the hogs on the Project was excellent during the year.

Miscellaneous Live Stock.

Beef.- There is a great deal of interest locally in the beef business. This is true chiefly because of the availability of range in the adjacent Shoshone National Forest. During the year a cooperative grazing association was organized. This association grazes approximately 400 head of cattle in the Shoshone National Forest at an actual cost, including losses and all other expense, of about \$3.25 per head. The predominating breed of beef cattle is the Shorthorn, chiefly because of the possibility of using cows of this breed occasionally for milk production. For straight beef production the Herefords are generally preferred. The industry is so new, however, that the matter

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

of breeds has not been settled. Four carloads of beef cattle were shipped from the Project during 1915.

Sheep.- Several farmers are keeping small flocks of ewes. It is planned by some of the farmers to produce pure bred males to sell to the large sheepmen in the vicinity. A few farmers buy feeders from sheepmen for winter feeding. During 1915 five carloads of feeders were shipped from Powell to Omaha, the freight rate being 46 cents per 100 pounds. At the close of 1915 there were on the farms of the Project, 956 sheep, as compared with 1151 at the beginning of the year.

Summary of the Work.

During the period March 1 to December 31, 397 farm visits were made. There were 167 callers at the office and 273 other conferences. Two circular letters were issued and 22 newspaper articles were published. Eleven meetings were held. Miscellaneous butter fat tests were made in 79 herds during the year. Feeding tests were completed in 5 herds of swine.

Boise.

Meetings occupied most of the week ending February 26. Those on Monday, Tuesday and Wednesday were parts of three-day institutes held by the Extension Department of the State University. These meetings were scheduled a month too late for this section of the state and attendance has been small. Some of the meetings have been called off entirely.

On Saturday a meeting was held at Meridian to perfect the organization of the grazing association. Only about 20 men were present, but they were very enthusiastic and the organization was completed, constitutions and by-laws adopted and officers elected.

Huntley.

For the week ending February 27, Mr. Christopher reported as follows:

The success of the proposed cheese factory at Ballantine is

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

now believed to be assured, \$2100.00 having been subscribed and 176 cows pledged. Forty-six cows are pledged by three men who have not yet subscribed for stock.

Interest is being shown in a cheese factory association at Osborn. The farmers in this neighborhood do not appear as enthusiastic as those at Ballantine, but there is nevertheless good opportunity at Osborn. There is sufficient material for one at each place.

A second bull club is being discussed. It is expected that this club will soon be organized and that another pure bred Holstein bull will be imported.

Minidoka.

During the week ending February 12, institutes were held at Burley and Rupert. The roads were very bad, in some places impassable. Considering this the attendance was very good.

Work was given on "The Home Garden and Orchard", "The Farm Water Supply", "Potatoes-Varieties, Selection, Treating and Marketing", "The Growing of Clover and Alfalfa Seed", "Poisoning Rabbits and Farm Rodents". "Boys' and Girls' Clubs", "Beef and Sheep on the Farms".

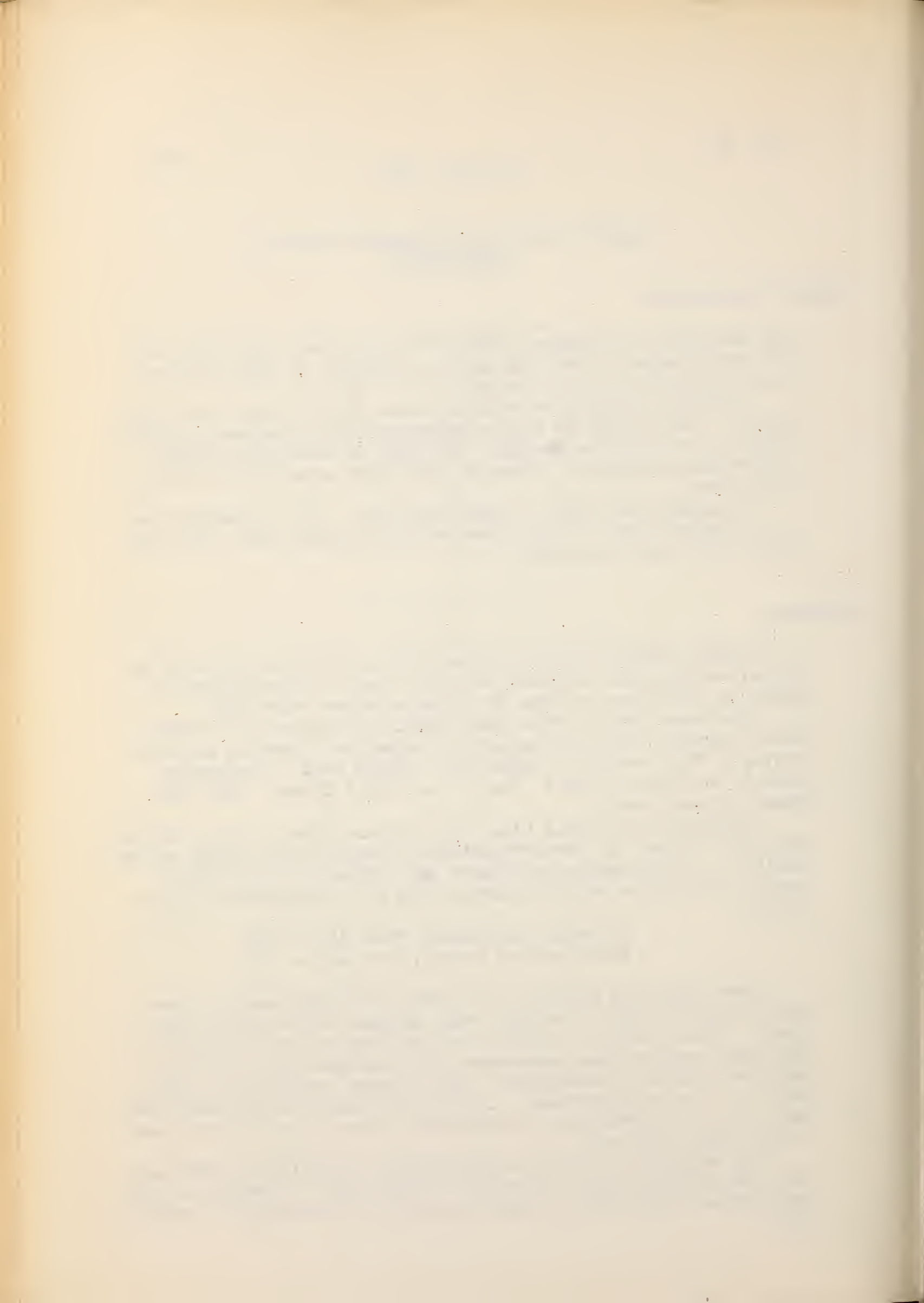
In addition to local help, the work was given by Dean Iddings and Prof. Vincent of the Agricultural College, Prof. Center and Mr. Taylor of the Extension Department, Mr. Thometz of Twin Falls, and Mr. Yearington and Mr. Allen of the U. S. Department of Agriculture.

Attendance at Burley, Feb. 11.--- 137

Attendance at Rupert, Feb. 12.--- 106

From Monday to Friday, of the week ending February 19, was spent with Mr. Ashby, visiting swine growers and studying conditions. While there is yet room for much improvement, during the past year considerable advancement has been made in housing and improved methods of management. The improved methods are mostly used in a few neighborhoods. In three districts on the South Side and two on the North Side the conditions average much better than in the other districts.

The majority of houses on the Project are built of straw and are dark, damp and cold. A number of those made of lumber are not much better, being built without provision for sunlight or ventilation.



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Field Notes.

Minidoka (continued).

On the South Side the best houses are mostly of the half monitor type, facing the South and all are somewhat similar. On the North Side the individual A-shaped house is popular. There is only one improved colony house on the North side. The interest in better methods is very good and many improvements along this line can be expected within the next few years.

Thirty-seven grazing permits for about 475 head of cattle have been granted by the Forest Service to the farmers who applied through this office. All applications were made with the understanding that if they were granted the permittees must form a co-operative range association. The organization is not yet completed, however, and it seemed best to wait until it was seen how many cattle the Forest Service could handle. A few more were taken than had been expected so that all applications received through the unorganized association were granted; that is, all those applying before it was too late. A number delayed in communicating with this office until such a time as the Forest officials refused to accept any more applications. These men will organize a cooperative range north of Minidoka and along the Snake River to American Falls this year, and will put in their applications for the Forest Reserve permits next year.

On Saturday morning, February 26, the Minidoka Jersey Cattle Club, an association of ten breeders of pure bred Jerseys held its annual meeting and dinner. Although the Club is small it is progressive and is planning on holding a community sale as soon as there is a surplus of stock.

On Saturday afternoon a meeting of the officers and stockholders of the Rupert Co-operative Creamery Association and other cream producers was held. Work has been done on the problem of improving the marketing conditions for over a year now, but as yet no definite results have been accomplished. There are four cream receiving stations at Rupert; and as each company rents a building and employs one man the price of butter fat is lower than at any other point in Southern Idaho. In addition to the four receiving stations cream is shipped out individually to two distant creameries. The meeting Saturday ended with most of the producers expressing a willingness to cooperate in any way that would benefit conditions, yet without any definite action. The proposition of a cooperative shipping association, to continue until such time as the creamery can be put into operation, was not abandoned, although the next step to take is not clear. Help is being requested from the Salt Lake Office of the Dairy Division.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton.

The first three days of the week ending February 26 were spent at the Farmers' School at the Cowichie school house. The interest in this school was very good. There is an increasing interest in supplementing alfalfa hay for dairy cattle. Three inquiries have been received since the school was held in regard to a grain ration to supplement alfalfa hay where silage and roots are not available and one inquiry has been received in regard to a suitable mixture of grasses for a cow pasture.

There was less interest in the pig feeding topics than in the dairy topics. This condition was expected for Tieton farmers have not realized much profit from their 1915 pig crop. Emphasis was laid upon the fact that a farmer must be conservative year after year in order to get through just such a condition as existed in 1915 with the least loss. There has been a tendency for many farmers to grow pigs regardless of their ability to handle a large or small number to the best advantage.

THE REARING OF CALVES IN CHEESE FACTORY DISTRICTS.

The following quotation from a letter written by Mr. J. E. Dorman to Mr. B. H. Rawl, relative to the production of calves in a cheese factory district in Wisconsin, will be of interest:

"On January 4,..... we visited 10 farms near Plymouth. I found that calves were being grown with great success without skim milk or whey. Nine of the farms were using practically the same methods, which are as follows:

"The calves were taken from the cows as soon as dry and never allowed to suck. The calves were taught to drink and were fed whole milk for about four weeks. At this age they were beginning to eat some grain and alfalfa or clover. They were encouraged to begin eating as young as possible. At the end of about four weeks the milk was gradually diluted with warm water until at the end of seven or eight weeks the milk was entirely discontinued. The amount of milk fed each calf ranged from ten to twenty pounds each day. The total amount of milk each calf received was from 300 to 800 pounds. The average price that milk brought at the factory was \$1.25 a hundred pounds. Therefore, the milk cost of growing these calves ranged from \$3.00 to \$10.00 each. At the end of sev-

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Field Notes.

Rearing of Calves, etc. (continued).

en or eight weeks the calves were subsisting entirely on hay, grain and water.

"One man was feeding some calf meal, which cost \$3.50 a hundred pounds. An average feed was about two pounds a day. This was used after the milk was diluted. The man who was feeding this meal did not have any better calves than the others who did not use the meal.

"I did not see a sickly calf or a stunted calf where there, which confirms my observations in other places that a great deal of the calf ailments comes from feeding skim milk. Where skim milk is fed, there is a temptation to overfeed in dirty pails, which causes the trouble. The cows that were grown by this method were large, well-developed cows, which proves that their vitality had not been lessened by the lack of milk. I obtained the record of one herd near Plymouth, which is as follows:

"Owner, Charles Eastman. Number of cows, 30. Six of these cows were two-year old heifers. Thirty cows produced in 1915, 306,000 pounds of milk, which is an average of 10,200 pounds per cow. The best cow produced 15,000 pounds. The gross returns from thirty cows was about \$3800.00. All of these are grade Holsteins.

"The following facts concerning Sheboygan County were given to me by a member of the cheese board at Plymouth:

"Size of Sheboygan County is 18 x 24 miles. There are located in this county 106 cheese factories that employ 225 men. Cheese manufactured in 1915, 25,000,000 pounds. Average price paid to farmers for milk, \$1.25 per hundred pounds. Amount paid to farmers, \$3,500,000. Cost of manufacturing cheese, labor, and supplies, \$327,500. Value of cheese on wholesale market, \$3,937,500. This gives a return of \$12.50 per acre for the entire area of Sheboygan County."

"WHAT A PAYING COW MUST PRODUCE".

Under the above title, the Breeders' Gazette for March 2 publishes an article which includes the table given on the following page. The article says regarding this table, "By the use of the table we can determine the value of a cow as a producer. Suppose she produces 302 pounds of butterfat which sold at 30 cents a pound and her feed cost \$75, by following out the lines in the scale she



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Field Notes.

What a Paying Cow must Produce (continued).

is found to be worth \$80. Or, without the table, 302 pounds of fat at 30 cents equals \$90.60, subtracted from which a feed cost of \$75 leaves \$15.60, which is $19\frac{1}{2}$ percent of her value (7 per cent on investment, plus $12\frac{1}{2}$ percent for depreciation). Her total value would be \$80. Of course all these production figures must represent the average of her 8 years' production.

To pay $12\frac{1}{2}$ depreciation and 7 per cent interest on investment.

INVESTMENT IN COW OR COST OF RAISING	Pounds of butterfat required when year's feed cost is													
	\$40		\$50		\$60		\$75		\$90		\$100		\$125	
	Butterfat		Butterfat		Butterfat		Butterfat		Butterfat		Butterfat		Butterfat	
	27¢	30¢	27¢	30¢	27¢	30¢	27¢	30¢	27¢	30¢	27¢	30¢	27¢	30¢
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
\$60	191	172	228	206	265	239	321	289	377	339	414	372	506	456
\$70	199	178	236	212	273	245	328	295	384	345	421	378	513	462
\$80	206	185	243	219	280	252	336	302	392	352	429	385	521	468
\$150	256	231	294	264	330	297	386	347	442	398	479	431	571	514
\$200	293	263	331	292	367	329	423	379	479	430	516	463	608	546
\$300	365	328	403	357	433	394	495	444	551	495	588	528	680	611
\$400	437	393	475	422	511	459	567	509	623	560	660	593	752	676

FEEDING WHEAT TO FATTENING SWINE.

Under the above title, the Missouri Experiment Station bulletin 136 reports some interesting swine feeding experiments in which corn and wheat were compared, and data were secured relative to the value of combining wheat with other carbonaceous feeds and with tankage. It is suggested that any of the field men who have not received this bulletin should send to the Missouri Station for it.

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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Truckee-Carson.

During the week ending February 26, the maximum temperature was 57; minimum temperature, 26; precipitation, .06 inch.

During the week ending March 4, the maximum temperature was 64; minimum temperature, 21; precipitation, .30 inch.

During this two-week period a large number of redwood irrigation and drain boxes were made to replace those in the fields which are decayed or broken. The nursery trees and shrubs were removed from B-4&5.

A Thomas grain and fertilizer drill has been purchased. This will be used in planting the cooperative grain variety tests and for distributing gypsum.

Plats C-1, 2, 3, 4, and 5 were leveled and seeded to sweet clover and oats. The purpose of the oats is to prevent blowing of the soil. Work was continued in leveling the new field south of field B.

Mr. Headley attended the "Farmers' Week" at the University of Nevada, and gave two talks; one on February 21, "Reclaiming Alkali Soils", and the other on February 24, "Experiments with Alkali Soils". The latter talk was partly in the nature of a demonstration in which experiments were performed illustrating the rise of water through the soil and treatment of impervious soils by gypsum and sulphuric acid to make them more pervious. The results of experiments tried on the Truckee-Carson Project were also given. The talk on February 21 was a general discussion of the alkali problem.

Scottsbluff.

Feeding and Selling Three
Calves.

The table on the following page shows the cost of feeding and the price received for three calves sold February 10, 1916, according to a report submitted by Mr. Knorr.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff (continued).

Name of calf.....	Ted (steer)	Blossom (heifer)	Jess (steer)
Breed of dam.....	Hereford- Angus	Grade Holstein	Grade Jersey
Breed of sire.....	Shorthorn	Grade Holstein	Shorthorn
Age when sold, months.....	13	11	12
Weight when sold, pounds.....	780	570	620
Net selling price, total.....	\$36.25	\$31.75	\$36.25
Net selling price per cwt.....	\$4.65	\$5.54	\$5.84
Value of feed, total.....	\$30.65	\$21.53	\$25.76
Value of feed per 100 pounds live weight.....	\$3.93	\$3.78	\$4.32
Net selling price less value of feed.....	\$5.60	\$10.22	\$9.49
Veal value at 8 weeks at 7¢ a lb.	\$13.30	\$11.27	\$9.80
Details of feed:			
Whole milk at current value of butterfat, value.....	\$4.96	\$1.32	\$2.80
Skim milk @ 25¢ cwt., value.....	\$10.00	\$6.78	\$9.13
Alfalfa hay @ \$5 a ton, value...	\$11.25	\$10.85	\$10.90
Corn stover @ \$2.80 a ton, value	\$ 0.28	\$0.28	\$0.28
Concentrates(corn and cob meal) @ \$1.50 per cwt., value.....	\$ 4.24	\$2.38	\$4.17
Pasture @ 35¢ a month, value....	\$ 0.35	\$0.00	\$0.35

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Scottsbluff (continued).

The table indicates that it would have been more profitable to sell the calves as veal than it was to feed them a year and sell them as yearlings. Mr. Knorr, in commenting on the price received for these calves, which were sold at auction, says: "It does not pay to take any special care or give any special feed to steer calves when they are to be sold as feeders. Our people here pay so much for yearlings, whether the latter weigh 400 or 800 pounds; a yearling is a yearling." Thus, as shown in the table, the same price was received for the steer weighing 620 pounds as for the steer weighing 780 pounds, so that, with this method of selling and with similar prices, more economy of feed is necessary if yearlings are to be sold at a profit. Under "details of feed" the table shows that alfalfa hay and skim milk were the principal items of feed cost in the production of these three animals. It appears that a large part of the alfalfa could well be displaced with grass pasture in cases where the latter can be successfully grown and that the feeding of concentrates could be dispensed with wholly or in part.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Huntley.

Seventeen calves were vaccinated against black-leg on Saturday of the week ending March 4.

Mr. Edgar L. Chaplin, of the Dairy Division, arrived on the Project March 1, to assist in getting the cheese factory started at Ballantine.

Mr. Wallace Ashby, of the Office of Public Roads and Rural Engineering, spent a few days on the Project investigating swine housing conditions.

Uncompangre.

Two days of the week ending March 4 were spent with the Delta business men regarding the proposed Holstein Club. During the week live stock was discussed with 18 men.

More inquiries came in regarding the bringing in of cows. A meeting of those interested was called in this office, and preliminary plans laid to import two carloads from Wisconsin. The details regarding the importation will be worked out and another meeting held March 11. Eleven farmers were present at the meeting, each of whom was interested in getting from 1 to 10 head of grade Holstein heifers. Bull clubs were discussed, and it is planned to import a few bulls with the cows.

Shoshone.

During the week ending March 4, 7 farms were visited, and 8 farmers called at the office.

At the request of the North End Club, a meeting was attended at their club house Wednesday evening to make a talk on hog houses. The problem in the minds of those present seemed to be to construct a house which would be inexpensive and yet be warm enough for the cold nights and to provide shelter from storms. No one favored a house which would provide for inside feeding or for exercising the pigs inside, and yet many pigs are lost here each spring from thumps because they will not get out of the beds for exercise. General approval was expressed of a house eight feet wide, of a length

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

to provide a pen six feet wide for each sow, constructed of tongued and grooved boards, and facing the south, with the roof sloping to the north and with an upper and lower door in the south side so the house could either be closed tight or sunshine could be admitted to the entire floor.

Two hog feeding tests were started, in one of which 15 fall pigs, averaging 50 pounds, will be fed a mixture of 300 pounds of alfalfa meal and 480 pounds of ground oats in a self-feeder. They will also be fed skim milk.

Tieton.

THE DEVELOPMENT OF LIVE STOCK INDUSTRIES ON THE
TIETON PROJECT IN 1915.

The following is a summary of the annual report submitted by Mr. R. P. Bean, covering his work in live stock industries on the Tieton Project in 1915. The work is confined almost entirely to dairying and swine production. Cooperation is had with the various divisions of the Department of Agriculture, with the Washington State Agricultural College, the State Department of Agriculture, and the local office of the Reclamation Service. The Tieton Project contains about 900 farms, many of which were planned as fruit farms. The fruit industry, however, has not proved as profitable as was generally expected, so that during the past 2 or 3 years the principal interest has been in live stock production.

The Dairy Industry.

Population and breeds.-- Complete statistics have not been secured relative to the number of dairy cattle on the Project at the close of 1915. The total number of cattle on January 1, 1915, was 1,425 head, as compared with 2,312 head at the close of the year. Of these 2,312 head, 1174 were matured females. The great majority of these cattle are used for dairy purposes. Definite information secured from 315 farmers owning cows showed that on 308 farms the cows were kept exclusively for milk production. Because of the small average size of farm--20 to 25 acres--the dairy herds are small, there being very few herds of more than 10 cows each. The most popular breed is the Holstein, but there are a few Jersey herds and a few Guernseys. Only a very few farmers have definitely chosen Short-

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued)

horns for milk production. During the year 72 cows and heifers are known to have been brought to the project.

Feeding.— Approximately 90 per cent of the dairymen on the project feed alfalfa hay exclusively, with the exception of occasional pasture in some instances. There are 16 farmers who have silos, 3 of them having 2 silos each. It is expected that 9 additional silos will be erected before the close of 1916. Of 226 farms on which cow-feeding methods were investigated during the year, 140 contained no pastures of any kind. On the 86 which contained pastures of one kind or another, 19 had alfalfa pasture only; 5 alfalfa and clover; 4 alfalfa, clover and timothy; 1 alfalfa, clover and bluegrass; 2 alfalfa and timothy; 4 alfalfa and bluegrass; 4 clover; 8 clover and timothy; 1 clover and bluegrass; 2 bluegrass only; 3 mixed grasses without legumes; and 33 had native grasses. The problem of supplementing alfalfa hay for dairy stock was given considerable attention during the year. Corn silage, mixed grass pastures, and root crops are gradually becoming popular.

Herd Testing.— Regular herd testing work was inaugurated in 28 herds including 155 cows and still in progress at the close of the year. One of the most noticeable results so far secured in this work, aside from the variation in individual cows, is the low cost of feeding under present methods. The average 1000-pound cow will probably not consume over 25 pounds of hay per day, which, at the ordinary price of about \$7 per ton, makes it possible to feed a cow a year for from \$40 to \$50. The greatest difficulty at present in connection with the herd testing work is to keep down the number of herds under test, so that it will be possible to watch all of them closely during the first year. The work could be doubled if it were possible to carry the additional amount satisfactorily. One interesting feature of the work is that the groups of farmers who are testing have met once a month for the purpose of testing milk samples and discussing dairy problems.

Marketing.— Practically all the Tieton farmers sell their cream to the local creameries and branches of centralizers. The cream is collected by wagons operated by these buyers. Exact figures of total butterfat production on the project could not be secured. The table below shows the average prices paid per pound of butterfat at the farms each month from January 1912, to December, 1915, by one of the representative buyers.

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Field Notes.

Tieton (continued).

MONTH	1912	1913	1914	1915
	¢	¢	¢	¢
January	37.6	37.2	33.9	28.5
February	33.5	37.0	33.0	29.2
March	33.7	37.5	28.6	30.9
April	30.4	33.0	25.7	24.0
May	28.4	27.8	24.0	22.6
June	28.5	29.0	24.0	24.0
July	28.9	29.0	24.0	25.6
August	30.7	31.9	24.0	26.0
September	32.8	33.8	34.0	30.0
October	34.0	34.0	34.0	30.0
November	34.9	34.3	34.0	30.0
December	36.9	36.6	32.8	29.3
Arithmetic Mean	32.5	33.4	29.3	29.2

One of the most important lines of work attempted during the year in connection with marketing was that looking towards a better understanding between the creameries and the producers, with the particular object of securing premium prices for high class cream. The interest in this matter is rapidly increasing throughout the entire Northwest, and there is good reason to believe that a system of cream grading and of buying on grade will be established within the next few years.

The local conditions in some respects are suitable for cheese making. There is some interest in some parts of the Project in the cooperative manufacture of cheese. It has not seemed desirable to advocate this at present, however, because of the limited capital available to farmers, and of the greater pressure of other matters.

The Swine Industry.

Population and Breeding.— The number of swine on the Project increased from 4,920 in 1914 to 5,473 in 1915, or 9.6 per cent. Of the number on hand at the close of the year, 724 were classed as brood sows. These sows were owned by 245 farmers, of whom only 23 owned more than 5. As is the case in the dairy industry, the swine industry must also be conducted on a small scale because of the small farm units. At the close of 1915 there were a total of

18 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued).

70 purebred hogs on the Project. Both Poland Chinas and Duroc-Jerseys are popular on the Project and a few other breeds are represented.

Feeding.- Alfalfa is the principal forage used for hogs. In many instances it is the only hog feed used except for a few weeks immediately before the hogs are marketed. Failure to supplement alfalfa pasture with grain was particularly noticeable in 1915 when grain prices were high and hog prices low. Nine feeding tests were conducted in cooperation with farmers, principally to determine the grain cost of producing pork on alfalfa pasture. In five of these trials it required, respectively, 230, 243, 290, 277 and 210 pounds of grain in addition to alfalfa pasture to produce 100 pounds of gain. Special emphasis was placed upon the desirability of using grain as a supplement to alfalfa pasture.

Diseases.- There were two outbreaks of cholera on the Project in 1915 and three other outbreaks in the immediate vicinity. A total of seven herds, including 86 head, were vaccinated. The only losses from cholera were 6 pigs which died before the herds were treated. The farmers showed exceptionally good spirit with reference to the observation of quarantine regulations and in taking sanitary precautions. This spirit was largely responsible for the prompt checking of the cholera outbreaks. Assistance was given in treating two herds for lice. The principal loss to the swine industry during the year resulted from the production of hairless pigs. This phenomenon prevails to some extent throughout the district between the Rocky Mountains and the Cascades. The disease is not well understood but is now under investigation by the Washington Experiment Station.

Housing.- The swine on the Project are very poorly sheltered, so that the losses of young pigs are high. The temperature in winter sometimes falls to 10 degrees below zero and the prevailing winds are generally cold, except in summer. The farmers are being urged to improve their hog housing facilities, but necessarily progress is slow because of the fact that most of the farms have been settled within the past three or four years and are not yet in full production.

Marketing.- The marketing conditions are not very satisfactory. The capacity of the local packing plant is small and very few hog buyers have come into the Valley. Cooperative shipment to Portland

18 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued).

or Seattle has been urged but was not practiced during the year. The local market pays a premium of from 50 cents to one dollar per hundred weight for fat pigs averaging from 180 to 200 pounds. Pigs which have been kept thrifty, through the use of skim milk or grain to supplement alfalfa pasture, have less difficulty in selling in this class than pigs grown on alfalfa alone previous to the finishing period. The average prices paid for hogs during the year varied from \$5.25 to \$7.00 per cwt., the higher price being paid in June and July.

The Sheep and Beef Industries.

At the close of 1915 there were on the Project 1,041 sheep, 300 of which were owned by three farmers. The others were owned in small bands throughout the Project. There is a growing interest in sheep production. Inquiries recently have been received regarding the purchase of ewes and methods of feeding and pasturing sheep on small farms.

A number of Tieton farmers have used the Rainier National Forest, which adjoins the Project on the North and West, for cattle grazing. A cooperative association, known as the Cowichee Cattle Company, has been in operation for several years. This association grazes a herd of approximately 1,000 head, some of which are owned on lands adjacent to the Project, at the total cost of from \$1 to \$1.50 per season. Later in the year much interest was aroused towards the extension of cooperative grazing. Two plans were being considered, one that the present organization be enlarged so as to include more farmers, and the other the organization of a second association. There are on the entire Project only seven strictly beef herds. Winter-feeding of beef cattle is not extensively practiced, most of the larger herds grazing on the reserve going in winter to the lower part of the Yakima Valley and to the Columbia River Valley, where water and feed are more readily available. In cooperation with the State Department of Agriculture blackleg vaccine was administered to 195 young cattle in 12 herds during the year.

Summary.

After the work was inaugurated in March, 630 farm visits were made; 129 farmers requested assistance or information, and 93 visited

18 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton (continued).

the local office; 31 meetings were held, at which the total attendance was 796. Three circular letters and two newspaper articles were issued. Regular record keeping was conducted in 28 herds, containing a total of 135 cows.

Minidoka.

During the week ending March 4, Mr. Kunze, of Buhl, who owns one of the largest dairies in the state and manages a cheese factory on his farm where 650 pounds of cheese is made daily, visited the Project and the Acequia Cheese Factory. He was well pleased with the arrangement and the equipment of the factory as well as the methods of management and in his opinion the venture will be a success. The output of the factory is increasing, about 4200 pounds of milk being received every other day. The demand for the cheese is so great that all orders cannot be filled. The demand is mostly local.

The Cooperative Range Association is now practically assured. The permits have been granted and the details of the organization are being worked out. As in all other work of this kind, committees are appointed and the work is done chiefly by them. It is preferred not to serve upon these committees but to meet with them in an advisory way. A meeting was held at Rupert Saturday at which a constitution was adopted and a committee appointed to meet with the stockmen on the South Side and complete the final organization.

The last series of district meetings for the winter have been arranged for the week beginning March 6. The weather is still unsettled and the roads very heavy which is favorable for meetings this time of the year. The meetings are all arranged for through the District Leaders and Survey men. The advertizing is done by announcements at the churches and schools and by franked cards which are mimeographed and mailed out to those who are specially interested in the particular line of work to which the meeting is devoted. The attendance secured in this way is much better than by any of the other methods tried.

Two cases of rabies, one of a dog and the other of a coyote, are reported to have been found on the Project this week. This is causing much discussion among the stockmen who consider it a serious menace to the industry. All the dogs on the North Side are now muzzled.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte.

The Farmers' Union Store, which was started in Mitchell in December, commenced shipping cream during the week ending February 19. At the present time this product is going to Denver; the price paid the farmers is 31¢ per lb. of butterfat.

Hog houses were planned for 3 farmers during the week. The heavy losses of the pig crop last spring caused by the severe weather very forcibly brought out the importance of good quarters for young pigs, and there is a noted improvement being made in farrowing quarters all over the Project this spring.

During the week ending February 26, Farmers' Institutes were held at Morrill, Wild Horse School House, Hope School House and Scottsbluff. The speakers at these meetings were Prof. D. H. Propps, U. S. Dairy Division; Mrs. E. A. Davisson, State Extension Department; Mr. Knorr; Mr. W. P. Snyder (at the Scottsbluff meeting); and Mr. Jones.

Three sessions were held at each point. The evening sessions were given over very largely to illustrated lectures. The attendance was as follows: Morrill, 200; Wild Horse School House, 150; Hope School House, 175; Scottsbluff, 150. The meetings were very successful. All points have asked for Institute meetings another year, and meetings have been asked for at additional points. At the Scottsbluff meeting, preliminary arrangements were made for organizing a North Platte Valley Improved Live Stock Association.

Considerable interest is being manifested in the importation of dairy cattle to the Project. This matter is being taken up through the various Farmers' Organizations in the valley with the assistance of Mr. Propps, of the U. S. Dairy Division, who has been spending considerable time on the Project.

During the week ending March 4, colony hog houses were planned for 2 farmers, and 2 herds were treated for worms. A visit was made to the farm of Fred Shinbur at the extreme northwestern corner of the Project. Mr. Shinbur has a few Hampshire hogs that he bought last year. These are the only Hampshire hogs known to be on the Project. Mr. Shinbur is well pleased with these hogs with the exception that they sunburn very badly on the white streak across the back. On account of this fault, he is going to dispose of his Hampshire hogs and raise Durocs instead.

Mr. Dunn from near the lower end of the Project was in the office during the week and stated that he expects to import a car load of Holstein cattle within the next 2 or 3 months for his own use. He

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Field Notes.

North Platte (continued).

was referred to Mr. Propps of the U. S. Dairy Division who is now working in this state in cooperation with the State University.

Mr. Ummel, dairyman near Mitchell, disposed of his entire dairy herd at a public sale during the week. The offerings consisted entirely of grade cattle with the following mixtures, Holstein, Jersey, Shorthorn, and Hereford. Mr. Ummel expresses his intention of importing some good dairy cattle within the next few months. The herd consisted of about 30 head which sold for an average of \$75. The sale was topped by a grade Holstein that sold for \$120.

Two farmers' meetings were attended during the week.

Truckee-Carson.

Under date of March 11, Mr. Cline reports that that the severe winter weather has resulted in an unusual demand for alfalfa hay, the price for baled hay f. o. b. Fallon having reached \$15 per ton. This situation, together with the better markets for other classes of farm products, has resulted in decidedly better financial conditions than prevailed a year ago.

An investigation was recently made of the poultry marketing possibilities in Reno. It was found that in 1915 that town imported 4,500 dozen chickens and 200,000 dozen eggs, mostly from the Pacific coast. It seems probable that there will be ample demand within the State for Truckee-Carson poultry products.

Uncompahgre.

Eleven farm visits were made during the week ending March 11. The weather has been very favorable and farmers have begun plowing. The pastures are growing very well.

On Tuesday evening a trip was made to Oak Grove to address the Grange at an open meeting. A talk on dairying was given together with a demonstration with the Babcock test. There were 125 present.

At the request of a number of dairymen a trip was made to investigate the Holstein breeding stock of the Pahgre ranch. It was found that the bull imported from Wisconsin two years ago comes from a dam with a record of 913 pounds of butter in a year. He has 28 daughters in test in Wisconsin with 7-day records of 21 to 26 pounds butter as two and three-year olds. There are a number of bull

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Field Notes.

Uncompahgre (continued).

calves from him on this ranch at present which are offered at reasonable prices. The cows on this farm are good producers, there being several producing 10,000 to 15,000 lbs. milk in a year.

On Saturday afternoon a number of dairymen met in the office for the purpose of further discussing the plans of importing cows. It was decided to investigate further the source of Holsteins in Utah. Another meeting will be called at a later date. A dairymen's association was formed for the purpose of advancing the dairy interests in the valley. It is hoped to extend this association to cover the entire western slope.

Owing to the increased orders for butter at the local creamery the price has advanced to 28 cents for butterfat.

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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Truckee-Carson.

During the week ending March 11, the maximum temperature was 78; minimum temperature, 21.

Eugene V. Grubb, potato expert of the Southern Pacific Company, visited the experiment farm on the 10th. In the afternoon of the same day he talked at the Court House to farmers on the subject of potato growing. As a result there is a renewed interest in the subject of securing clean seed, free from disease.

The hotbeds and greenhouse were made ready for spring planting.

All the alfalfa fields were harrowed with a spring-tooth harrow, to kill weeds and grasshopper eggs.

A part of the newly made irrigation boxes were placed in position in the fields.

San Antonio.

During the week ending March 11, the maximum temperature was 92; minimum temperature, 45; and greatest daily range, 39.

Canada field peas and rye were plowed under in the rotation experiments. The peas were very small at the time of plowing under, having grown very slowly during the spring on account of dry weather. There was a poor stand of live plants on most plats owing to winter killing. The rye was also smaller than usual at this season of year. Taking of soil samples was continued throughout the week. All rotation plats which are fallow were harrowed the last part of the week to get the plats in readiness for planting the sorghums.

The Texas Corn Growers' Association's variety test of corn was put in the first part of the week.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Minidoka.

During the week ending March 11, a series of meetings was held at those points from which requests had not been received early in the winter. The special meetings devoted to the problems of swine production were held only in those districts where the interest in the industry seemed to be good. At that time many thought that because of the discouragement at the low prices the attendance would be small. Later these districts made requests for these meetings and were given the work on this week.

The meetings were held as follows:

<u>Date</u>	<u>Place</u>	<u>No. of Dist.</u>	<u>Attendance.</u>
Tuesday evening	Emerson School	11	32
Wednesday "	Unity Church	S.E 1/4#1	38
Thursday "	Marshfield	17	73
Friday afternoon	Rupert	1	41
" evening	Hopewell School	15	44
Total.....			228

As the school district was the unit for the meetings, the above noted attendance was good.

The lectures were all illustrated and were on hog houses, types and breeds of swine and the different methods of management with 64 slides showing the work of the Bureau of Animal Industry in controlling hog cholera. Dr. Sullivan, Inspector in Charge of the Hog Cholera Control Work, attended each meeting and gave the work on hog cholera.

The interest as indicated by the questions and discussions was good. The farmers present had no intention of discontinuing the business of swine growing. Most of them were of the opinion that they had not been giving enough attention to their hogs while some thought that they had been trying to raise too many for the size of their farms. The present price of hogs (\$6.75) is considered to be such that a good profit can be realized.

THE DEVELOPMENT OF LIVE STOCK INDUSTRIES ON THE MINIDOKA PROJECT IN 1915.

The following is a summary of a report made by Mr. E. F. Rinehart covering his work in live stock industries on the Minidoka Project in 1915. The work is devoted chiefly to swine production and dairying but there has been considerable activity in connection with the sheep and beef industries. Cooperation is had with the various divisions of the Department of Agriculture, with the University of Idaho and other State agricultural agencies, and the

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka.

Development of Live Stock Industries (continued).

local office of the Reclamation Service. At the close of 1915 there were in operation on the Project 1,814 farms, an increase of 101 over 1914.

The Swine Industry.

Population and breeds.- During the past three years the swine industry has experienced very rapid growth. In 1913 the number of hogs on the Project was 16,787; in 1914, it was 29,819; and in 1915, 43,933, an increase of about 47 per cent during the year. In the fall of 1915, the average number of hogs per farm on the entire Project was 24, the average being 17 on the gravity unit and 38 on the pumping, or south side, unit. Practically all the breeds of hogs known in America are grown on the Project. One of the most difficult problems to be met in bringing about the desired improvement in the industry relates to breed standardization. During 1915 the low prices compelled the farmers to pay more attention to the quality of their breeding stock. It is expected that this will result in decided improvements in breeds and breeding methods as well as in other features of hog management.

Feeding.- There is a very common practice of pasturing hogs on alfalfa without any supplementary feeds. This results in stunted shoters, of which the growth and future gains are so slow that pork is frequently produced at a loss. Efforts are constantly being made to introduce better feeding methods.

Cholera control.- The greatest quantity of work in connection with swine production during the year related to the control of hog cholera, which appeared on the Project in October, 1914. The work on hog cholera has been carried on in cooperation with the Bureau of Animal Industry hog cholera eradication officials, whose headquarters is at Twin Falls. Comparatively little difficulty was experienced in the control of the disease where the cooperation of the school district organizations was effective, as was particularly the case on the gravity unit. On the whole, the results obtained in connection with cholera were very satisfactory. A total of 183 suspected cases were investigated, cholera being found in 40 herds, all of which received treatment. The number of hogs treated for cholera was 3,129, of which only 82, or 2.62 per cent, were lost following treatment. The last case of cholera occurring during the year appeared November 16.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka.

Development of Live Stock Industries (continued).

Marketing. The marketing conditions on the Project are not entirely satisfactory. During the year hogs were shipped to various outside markets including Los Angeles and Denver. The rate to these points are high and the shipping time is so long that high shrinkages occur. There were shipped from the Project during the year a total of 347 carloads of hogs, or approximately 36,435 head.

Pig Clubs.- Pig clubs were organized in four districts. The results secured by two of the clubs were very satisfactory. Pork was produced by the members at from 3 cents to 4.4 cents per pound, the feed used being charged at actual market prices and the boys' time valued at 10 cents per hour. One member of one of the clubs took first prize and a member of another club took second prize in the state-wide contest in competition with 634 club members from all parts of the state.

Miscellaneous. Among the year's activities in connection with the swine industry might be mentioned the advocacy of shallow concrete wallows, shade, improved sanitary conditions, and the promotion of better housing conditions. During the year a total of 317 farm visits were made in connection with the swine industry. Of these, 183 were made chiefly in connection with cholera, and 134 for the purpose of discussing types, methods of feeding and management, housing systems and other similar items. Five colony houses were built on the Project early in the year and numerous others were later built in the same sections in general accordance with the plans of the original five which were furnished by the local office.

The Dairy Industry.

Population and breeds.- The number of dairy cattle on the Project in the fall of 1915 was 6,902, an average of 3.8 head per farm. The principal dairy breeds are Holstein and Jersey. A large number of Shorthorn cows are used for dairy purposes. There is one cooperative pure bred association, the Minidoka Jersey Cattle Club.

Feeding.- The feeding methods are generally inferior. The exclusive use of alfalfa hay is common. Until such a time as the farmers will be able to build silos, the use of roots in the ration is advocated. Grain feeding is advocated for high producing cows.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka.

Development of Live Stock Industries (continued),

One very encouraging improvement in the dairy situation on the Project is the rapidly increasing use of irrigated pastures. These pastures do unusually well and are rapidly increasing in popularity. There are now on the Project 9,647 acres of irrigated pastures, of which 1,081 acres were seeded in 1915. The commonest mixture is bluegrass and white clover. Roots, particularly mangels and sugar mangels, yield well and are of much value in improving winter feeding methods. In the spring of 1915, seed of sugar mangels was secured and distributed to a few farmers for trial. The results have been so satisfactory that each of the men who tried the seed is planning to plant from 1 to 5 acres in 1916. Tests of corn varieties conducted in cooperation with farmers have shown that from 12 to 15 tons of corn silage can be produced to the acre.

Herd Improvement.— Efforts are constantly being made to encourage the farmers in improving their herds. In this connection, some cow testing work was carried on in 9 herds including 82 cows. Regular record work was conducted in 4 herds, from two of which 28 inferior cows have already been eliminated. Assistance was given in connection with the selection of 11 grade cows and one registered Holstein bull.

Marketing.— The marketing conditions have not been satisfactory. There are no creameries on the Project and it is necessary to ship the cream to other sections. Towards the end of the year steps were taken and committees were appointed to work out a plan for cooperative marketing. A cooperative cheese factory was organized on the Project during the year and is doing much to encourage the dairy industry in the immediate vicinity, particularly in providing more satisfactory market conditions than have hitherto prevailed.

The Sheep Industry.

The sheep population on the Project was 19,968 in 1913; 13,588 in 1914; and 16,948 in 1915. These figures do not include the sheep brought to the Project for feeding in-transit. During the year there were shipped from the Project 280 carloads of sheep, or approximately 64,800 head. The wool shipments amounted to 9 carloads.

With the prevailing high prices, sheep are becoming very popular. Good irrigated pastures on the Project will carry from 6 to 10 ewes and their lambs per acre. The sheep are also valuable in the utilization of waste products such as shattered grain, waste

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka.

Development of Live Stock Industries (continued).

hay, and beet tops. The interest in the sheep industry is very good and is increasing. The industry is favored particularly by the early spring weather, which is very favorable to the production of early lambs.

Many range bands of sheep are owned and wintered on the Project. Some difficulty has been experienced in these bands in connection with the failure of the ewes to produce sufficient milk. This condition has been overcome to some extent by the feeding of roots. A few sheepmen are planning to contract with farmers to produce roots at \$5.00 per ton.

During the year 50 visits were made to farms and range lands in the interest of sheep production. These visits related chiefly to lambing problems, selection of breeding stock, pasture, and feeds. Assistance was given in the selection of 4 registered Hampshire rams and 31 registered Hampshire ewes. The total number of sheep in the selection of which assistance was given was 335.

The Beef Industry.

At the close of 1915 there were on the Project 1220 head of cattle kept for beef production exclusively. During the year there were shipped from the Project 163 carloads of beef cattle. The production of beef on the farms is becoming popular, both where irrigated pastures are available and where outside range can be utilized. During the year, 10 good purebred beef bulls and a few good beef cows were brought to the Project. Up to date the winter feeding methods have not been the best, the farmers having overlooked many opportunities to utilize the feeds available.

Approximately 4,000 head of range cattle are owned and wintered on the Project, but are not included in the figures showing the number of cattle on farms. In 1915, approximately 4,200 head of beef steers were fattened on the Project on by-products of the sugar factory and hay and grain. Within the past year there were started up on the Project two herds of purebred Shorthorn herds and one herd of Galloways.

During the year 19 farm visits were made in the interest of the beef industry, mostly for the purpose of discussing types and the use of summer range. Assistance was given in the selection of three beef bulls. At the close of the year work was inaugurated with a view to organizing a cooperative grazing association whereby the beef producers on the Project can utilize some of the range

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes.

Minidoka.

Development of Live Stock Industries (continued).

land available in the Minidoka National Forest. The prospects for this association are good.

Miscellaneous.

A great deal of interest was evinced in the neighborhood meetings held on the Project, of which 57 were held during the year. No part of the work has been more popular than these meetings. Another very successful line of work has related to community action, particularly where groups of farmers have appointed committees, with whom the field man has worked. A total of 576 farm visits were made; 819 requests for information or visits were received, and there were 259 visits made to the local office. The total attendance at the 57 meetings held was 1,257. A total of 183 cases of hog sickness were investigated and treatment for cholera was applied in 40 herds to 3,129 hogs, of which only 2.62 per cent died following treatment. There were issued 23 newspaper articles and one circular letter, and 169 agricultural bulletins were distributed upon request. Plans were furnished for 8 hog houses, 5 dipping vats, and one feeding floor. Assistance was given in the selection of a total of 367 animals, including hogs, cattle and sheep.

Huntley.

Arrangements were made during the week ending March 11 to hold three institute meetings on the Project; March 16 at Osborn, March 17 at Worden, and March 18 at Pompeys Pillar. Dean Linfield and Prof. Atkinson, of the State College, are expected to assist with the meetings.

A cheese factory meeting was attended at Ballantine on Saturday. Forty were in attendance. This meeting was called for the purpose of collecting money for the stock that had been subscribed and perfecting a permanent organization. Eighteen men paid for their stock at this time and thus became bona fide members of the organization. These eighteen members elected five of their number as directors who will transact most of the business of the organization. The directors will meet in the near future to elect their officers and prepare articles of agreement and by-laws to be submitted to the stock holders for adoption. A total of \$1625 was deposited Saturday to the credit of the association, and there is \$500 promised for stock

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

which has not yet been paid, but it is all collectable so that the association has capital stock of \$2,025.00, which is believed to be enough to insure the success of the factory so far as initial financial support is concerned.

North Platte.

Fat hogs reached the \$9.45 mark on the Denver market on Saturday of the week ending March 11. This is said to be the highest price paid for hogs on the Denver market for five years. Seven cars of fat hogs were shipped to Denver from the Valley during the week. Six of the seven cars were shipped by the farmers and one by a local buyer. These were on the market Tuesday, when the tops sold for \$8.95.

During the week a complaint was received from near Bayard to the effect that a farmer in that locality had been losing a number of his hogs and was disposing of them by throwing them into an old shallow well. Matters were at once investigated and found as reported. The hogs were burned and apparent good feeling resulted between all concerned. A few of the hogs were posted and cholera lesions were found. As there were only two ailing shoats left in the herd they were killed and burned with the rest.

During the week the Farmers' Union Store at Mitchell received 1000 pounds of cream. The Farmers' Union Store at Morrill received 2600 pounds. The price paid for butterfat was 33¢. The following are other quotations from these stores: Corn, \$1.25 to \$1.30 cwt; shorts, \$1.35; bran, \$1.15.

According to reports received from railroad agents, 63 carloads of fat hogs were shipped from the Valley to Denver during the month of February. This is said to be the largest monthly shipment ever made from this locality. The total gross receipts for these shipments were approximately \$87,885, the average price per hundredweight in Denver being \$7.75. During February, 1915, 56 cars of fat hogs were shipped at an average price of \$6.45 per hundredweight, the total receipts being \$65,060. The February, 1916, receipts exceeded those of February, 1915, by \$22,825, or 35 per cent.

Much interest is being manifested in better hog houses and a marked improvement is being made in that connection. During the month of February hog houses were planned for 8 farmers.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Boise.

Three meetings were attended during the week ending March 4, two of these being held by the State Extension Department. These meetings were held too late for this section as the weather has been very favorable for farm work and this has made the attendance at the meetings rather small. Only 25 were present at Wilder on Monday, and 36 at Homedale on Tuesday; these were live stock days at these places. The meeting planned for Riverside in connection with those at Wilder and Homedale was cancelled by the farmers of the district because of the opening of spring work.

The meeting at Perkins Friday evening was a dairy meeting held under the auspices of one of the creamery companies for the purpose of discussing a proposed cheese factory at Perkins.

Pastures, hog management and cow testing were the subjects discussed by Mr. Ireland at the three meetings named above. Prof. Hickman, of the State University, and Mr. A. L. Johnson, of Idaho Falls, discussed poultry and beef cattle at the first two, and County Agent Williams, of Ada County, talked on silos at the Perkins meeting.

Most of the week ending March 11 was spent in connection with a proposed cow-testing association. The association is not yet assured, but there is a fairly good prospect that the required number of cows will be subscribed. Twenty-six herds with an average of twenty cows per herd is desired; twenty herds with an average of 19.4 cows have so far been secured, and some other larger herds are fair prospects.

A case of hog cholera was found near Caldwell on Saturday. In this herd, 12 head were treated. It now appears that a man in that locality has had cholera on his farm a good part of the winter and had not been quarantined. It is reported that he shipped a car of hogs to Portland and had only six pass the inspectors; also, that he has lost 156 head. Another neighbor has lost heavily in a herd of purebred Berkshires, the cholera being complicated with pleurisy and septicemia.

The State Farm near Caldwell was visited Saturday with County Agent McCall and Director Center of the State Extension Department. A dairy herd is maintained on this farm and a number of the cows have been affected with swellings on the jaws, resembling, to some extent, actinomycosis. Five animals are affected and all the swellings appear on the right side, which may be merely coincidental. The services of a competent veterinarian were recommended, and it was decided to call one of the local men next week. There have been a number of cases similar to this one but the cause of the trouble has not been learned.

25 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton.

Twenty-one office conferences were held with farmers during the week ending March 4.

Alfalfa hay is selling on the farms at from \$15 to \$25 per ton, depending upon nearness to passable roads. Several farmers are driving their cows out to rustle dry grass in the sage brush as the snow has left most of the south slopes. It is usually easy to talk to dairy farmers of the value of silage with which to supplement alfalfa hay and the conditions this spring afford added emphasis not only to the value of silage as a feed but to the inconvenience of depending upon a single crop, even alfalfa.

Twenty-seven farms were visited during the week ending March 11. Two visits were in answer to calls to vaccinate for black-leg. Four other calls for assistance were answered, milk was tested on seven farms, and three were visited in regard to boys' pig club work.

The upland farms are rapidly drying out and work will undoubtedly begin upon the land in a short time.

The butter fat market has changed considerably during the month, due, the local creameries report, to importation of California butter onto the Seattle market. The price has been 31 cents per lb. on the farm until February 29 when it dropped to 27 cents. On March 6 it advanced to 30, and on the 8th to 32 where it still remains. One of the local creameries anticipates another drop in view of information which has reached them that another shipment of California butter is due to reach Seattle shortly. It has not been ascertained whether the California shipments are of low grade, cheap butter, storage or fancy grade.

Prime grain fed pigs at from 175 to 200 lbs. are selling at \$7.75 at the local meat company's plant. Brood sows are quoted at \$5.50 to \$6.50, and the bulk of the sales are from \$6.75 to \$7.25 per cwt. The buyers report a tendency to market unfinished stuff and are having to finish some of it in their yards before killing.

Shoshone.

During the week ending March 11, 9 farm visits were made, and 13 men called at the office.

25 March, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

Two days were spent with Mr. Ashby, observing hog structures and discussing them with the farmers. Only one hog house on the Project at all satisfies the requirements for a satisfactory hog house. This house provides for one row of pens six feet wide and twelve feet deep. The house can be entirely closed and the north wall is double with paper between the two layers of boards. The house faces the south and the roof slopes to the north. A small door connects each inside pen with an outside pen on the south side of the house. The partitions between the outside pens are tight so as to break the wind. Above the doors the sunlight is admitted through a continuous opening in the wall. This opening is closed during stormy weather by board windows. Above this, are a few glass windows for light on stormy days.

One of the farmers on the Project this year is lambing out a flock of ewes for one of the sheep ranchers. The farmer received the ewes in the fall when the range pastures failed and feeds them until the spring pastures are ready, caring for them during the lambing season. He receives half of the lambs.

VEHICLES.

Our auditors are now asking for identification of passenger-carrying vehicles to which repairs are made, in order that proper charge may be made to the particular vehicle involved. It will be necessary, therefore, in the case of farms having more than one vehicle of this description to identify them by numbers and to refer to such numbers on vouchers covering repairs. For the fiscal year 1916 the allotment was as follows: One buggy each at Yuma, Truckee-Carson, and Umatilla; two buggies each at Belle Fourche and Huntley, and three at San Antonio.

1 April, 1916.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Truckee-Carson.

During the week ending March 18, field A3 was leveled and made ready for varieties of garden produce.

The tomato, cabbage, pepper and eggplant varieties were planted in the greenhouse, hotbeds and coldframes.

On March 11, a demonstration was given on the farm of G. W. Lattin in treating apple and pear trees affected with fire blight. The demonstration was arranged for by this station and was given by Prof. P. A. Lehenbauer, of the University of Nevada. About 30 farmers were present. The disease seems to be present in most of the orchards of the project.

Prof. Lehenbauer again visited the experiment farm March 18, for the purpose of studying the diseases of fruit trees prevalent on the project. He was taken to various private orchards by Mr. Headley.

The maximum temperature during the week was 79; minimum temperature, 24.

Yuma.

During the week ending February 26, the maximum temperature was 84; minimum temperature, 40; greatest daily range, 38.

Much work during the week was devoted to preparing and planting grounds to ornamentals. A new bed of thirty-nine plants of everblooming roses was made. These plants had been grown in the nurseries on the experiment farm. Fifty-five Arizona ash trees were received from the Kirkman Nurseries of Phoenix, Arizona, and planted as a grove and screen near the stock corrals.

Many of the flood sufferers are back in their houses, although the land is not yet ready to work. Alfalfa stands do not seem to be badly damaged by the overflow, but the winter grains in many cases are killed. These grains did not appear to be severely injured by the first overflow.

During the week ending March 4, twenty acres were irrigated. The maximum temperature for the week was 84; minimum temperature, 39; greatest daily range, 34.

Further ground plantings were made, of ninety-three plants representing forty-one species and varieties. In preparing for these plantings about eighteen inches of sand was removed and replaced by good soil mixed with stable manure.

1 April, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma (continued).

During the week ending March 11 considerable work was done on the irrigation system.

With the object of securing specimens of the native trees of this region for plantings on the grounds a day's excursion was made to the mesa lands where forty-one plants were secured representing nine species. As these desert plants are extremely difficult to transplant there is doubt as to the success of establishing some of these specimens.

Border B-22 was planted to peaches and apricots to be grown for a pruning experiment. As these two fruits, as well as several other deciduous fruits, make such rapid growth in this climate, some method of severe summer pruning will doubtlessly be found desirable to force a large production of fruit. Early New Castle and Royal apricots and Pallas and Elberta peaches are planted in this half-acre block. The varieties Early New Castle and Pallas are good bearers here while the varieties Royal and Elberta grow very vigorous trees, but tend to be shy bearers.

Fruit varieties recently placed in the deciduous orchard include 58 varieties and a total of 158 trees.

San Antonio.

During the week ending March 18, the maximum temperature was 90; minimum temperature, 36; and greatest daily range, 46. On the morning that 36 was recorded, ice formed in the pig trough on D3, but no other evidences of freezing were observed.

Early in the week milo, sorghum, and Sudan grass were planted on the rotation plats.

Johnson grass and weeds were hoed from all the rotation plats during the week. Johnson grass dies readily when stirred up during such dry conditions as obtain at present, and a continued effort will be made to free all cultivated fields.

Late in the week a surplus stock of about 630 two-year-old Amygdalus davidiana trees were dug, pruned and packed in damp straw to await packing for shipment to the Austin Nursery Company where they will be cared for and experimented with.

Several complaints about June bugs destroying garden crops have come from the immediate vicinity. It is stated that the beetles come out of the soil in the evening, work particularly between 10 p.m. and 3 a.m., do not fly but crawl about sluggishly over the ground, and then return to the ground for the day. The farm has not been troubled as yet.

1 April, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Boise.

THE DEVELOPMENT OF LIVE STOCK INDUSTRIES ON THE BOISE PROJECT
IN 1915.

The following is a summary of the report submitted by Mr. H. A. Ireland covering his work in live stock industries on the Boise Project in 1915. The work is devoted chiefly to the swine and dairy industries, but some work is also done in connection with the beef and sheep industries. Cooperation is had with the various divisions of the Department of Agriculture, with the University of Idaho, and the local office of the Reclamation Service. The Boise Project proper contains about 2,000 farms, located in Ada and Canyon Counties, Idaho, and Malheur County, Oregon. A part of the irrigated area of the locality is not in the project proper, the lands being irrigated by old systems of canals which were in operation before the Reclamation Service entered that territory and which have not since been taken over by the service.

The Swine Industry.

Population.- According to the figures secured from the Reclamation Service the swine population at the close of 1915 was 25,286 head, an increase of only 191 head over 1914. These figures do not include those extra-project lands mentioned in the preceding paragraph. The total swine population of the entire irrigated district is probably close to 35,000 head. The small increase in the swine population in 1915 was due largely to the very low prices of pork and to the relatively high prices of grain. A serious difficulty in connection with the swine industry is its instability. The tendency among a large number of farmers has been to look upon the swine industry as somewhat of a speculative enterprise. This being true, these farmers have increased their swine holdings during the periods of high pork prices and decreased them abruptly during periods of low prices. This instability is reflected in several ways, as will be indicated later, and is one of the tendencies which must be overcome before the swine industry can be developed satisfactorily.

Breeds.- Poland Chinas and Duroc-Jerseys are the predominating breeds, their numbers being about equal. Chester Whites, Berk-

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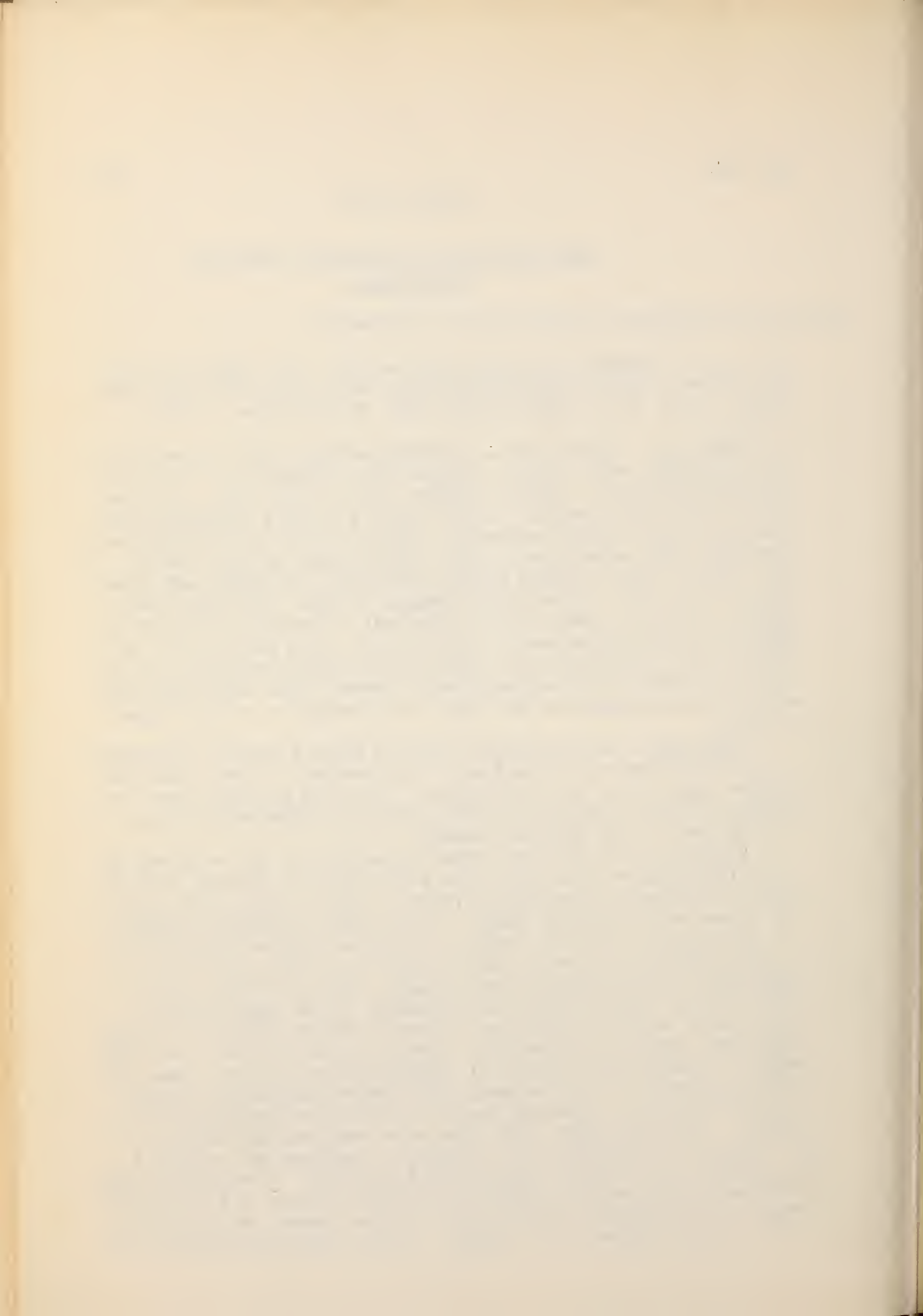
Live Stock Industries on Boise Project (continued).

shires, and Hampshires are also represented. The number of pure bred swine is small, although pure bred sires are used rather commonly, nearly all of these being either Poland China or Duroc-Jersey.

Feeding.- Alfalfa hay or alfalfa pasture forms the basis of nearly all the swine rations. Beyond this, there is no uniformity in feeding methods. Alfalfa pasture, as it is now used, is relatively inefficient because, first, there is little alternation of pastures, and, second, because the pasture is not sufficiently supplemented with carbonaceous feeds. Corn, oats, barley, shorts, and bran are used as grain feeds, each being fed singly more often than in a mixture. Some little tankage is used. Six tests were planned during the early part of the year in connection with hogging-off peas, but because of the failure of the pea crop in two cases, and of cholera in the others, satisfactory results were not secured. Three of the swine growers, however, who tried peas were well enough satisfied so that they are planning to try them again in 1916.

Pig Clubs.- In cooperation with the State Extension Department several pig clubs were organized. Nine members of these clubs exhibited pigs at the fair at Caldwell. The pigs generally were creditable but were produced at rather high cost, the better ones costing nearly five cents per pound.

Diseases.- By far the greater proportion of the work done in the swine industry during the year was devoted to cholera control. Cholera appeared on the project first in 1913, during which year the losses were extremely heavy. The disease continued throughout the winter of 1913-14, but in 1914 it was not so virulent nor so wide-spread as it was in 1913. Previous to 1915 there was no organized effort to control the disease. Early in that year, in the districts where cholera was prevalent, local organizations were formed, and these assisted greatly in the enforcement of quarantine and sanitary regulations. Formerly there had been some tendency to conceal the presence of cholera but in 1915 there was very little evidence of this tendency, the farmers generally cooperating effectively in reporting cases and otherwise handling the situation. During the year, 136 herds were inspected for cholera. Of these, 40 were found to be infected. Treatment was applied by Mr. Ireland in 31 herds, aggregating 2,096 head. In these 31 herds, 118 head, or 5.6 per cent, were not treated because of the advanced stage of the disease, and 640 head of those treated showed temperatures of 104 degrees F. or higher. Of the 1978 head treated, 216,



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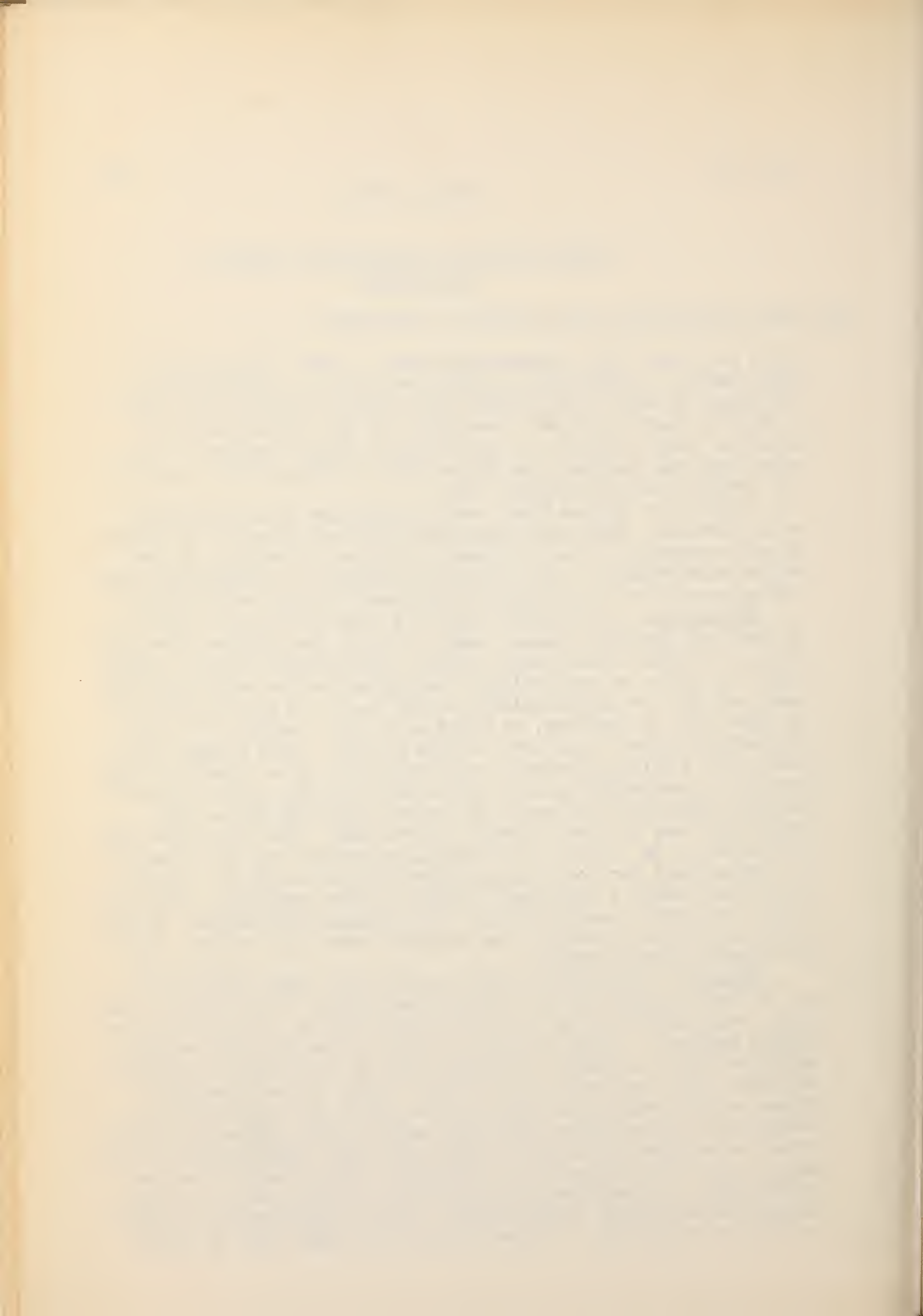
Live Stock Industries on Boise Project (continued).

or 11 per cent, died following treatment. Heavy losses in two large herds, in which the infection was general, increased the percentage of loss. The largest herd treated contained 427 head, of which 4 died previous to treatment and 125 showed high temperatures when treated, but only one died after treatment. The serum used was imported from Kansas City and Sioux City, and cost the farmers 1 to $1\frac{1}{2}$ cents per c.c.

Aside from cholera there was no widespread difficulty with swine diseases. Some infectious sore mouth was observed and treated and occasionally cases of tuberculosis were observed in post mortem examinations. A few herds were treated for intestinal worms and numerous inquiries regarding treatment for lice were answered.

Marketing.- During 1915 hogs were shipped from the project to Portland, Seattle, Tacoma, Salt Lake City, Los Angeles, San Francisco, El Centro (California), Denver, Kansas City, and St. Joseph. The total number of cars shipped, according to the available figures, was 521, or approximately, 52,000 head. A large proportion of these went to Portland, to which point the freight rate is approximately 45 cents per cwt., or \$90 per car. This freight rate, with other shipping expenses, including one feed in transit, brings the cost of marketing to about \$1.00 per cwt. The prices secured were low throughout the year, the maximum being \$7.00 per cwt., which price was secured for only a short time. Some hogs were sold for as low as \$4 per cwt. For several months the top price was \$5 and the average for the year was between \$5.50 and \$5.75. These low prices caused a heavy sale of hogs in poor condition, which, in turn, was largely responsible for the continued low prices. At the close of the year, however, the prospects were much brighter than for several months previous.

Shelter.- Due partly to the fact that the swine industry is as yet very unstable on the project, and partly to the lack of capital, comparatively little is being done in the way of building permanent shelters. On the majority of farms straw shelters are the only ones used. A number of growers use the "A" type of individual house and a few have colony houses. There is one elaborate house, of the half-monitor type, 28 feet wide and about 200 feet long, which was built two years ago when hog prices were high. This house is now used for only ten brood sows and a small bunch of stock hogs, which illustrates the instability of the industry. Another illustration is furnished by a farmer who recently was one of the largest swine growers on the project but who nevertheless provided no shelter of any kind. There is need for a great deal of field



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DEMONSTRATIONS ON RECLAMATION PROJECTS.
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Live Stock Industries on Boise Project (continued).

work to improve the housing conditions.

The Dairy Industry.

Population.- The number of dairy cattle on the project increased from 5,150 in 1914 to 6,768 in 1915, or 31 per cent. If to these figures is added the number of cattle on the extra-project lands in the vicinity, the total number of dairy cattle in the district would be in the neighborhood of 8,000. The average sized herd includes about 6 producing cows. The largest herds on the project contain from 45 to 50 cows but there are only a few of these. The average size of the herds listed by prospective members of a proposed cow testing association is 23 head.

Breeds.- Jerseys, Holsteins, and Guernseys are all represented, and range in number in the order named. The Jerseys are at present the most numerous but Holsteins are gaining rapidly in popularity and promise to become the predominating breed. The use of pure bred sires is becoming more common and the quality of the dairy stock is gradually being improved.

Feeds.- Alfalfa is universally fed and is often the only feed used. It is supplemented in a few cases with grain, silage, or roots. These cases, though few, indicate a tendency toward more variety and better methods of feeding. There is each year a small acreage of root crops and a few farmers produce pumpkins for fall feeding. Satisfactory yields are secured from both crops. One farmer recently reported a yield of 48 tons per acre of half-sugar mangels. Silage is rapidly increasing in popularity and promises to become an almost universal feed among dairy-men. There is a general and growing interest in irrigated pastures. The Reclamation Service figures show a total area of 5,238 acres of irrigated pasture in 1915. During the year detailed investigations were made of irrigated pastures, aggregating 461 acres, on 24 farms on the project. The results indicate that, where good methods are used, a carrying capacity of from 2 to 2½ head of mature cattle per acre for six months can be depended upon where no extra feed is supplied. However, it is not recommended that stock be kept on pasture without some dry feed, and most pasture owners are using some hay in connection with pasture. Interest in silos is rapidly increasing. There are on the project more than 40 silos, of which about 20 were constructed in 1915. Of these there are known to be 9 pit silos, 16 monolithic concrete, one lath and plaster, one modified Wisconsin, and the remainder stave or improvised wooden silos.



DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Live Stock Industries on Boise Project (continued).

Cow Testing.— Only a little work was done in cow testing during the year. Records are being kept in three herds in cooperation with the local office and are to begin in two others in the near future. Several farmers are keeping records independently. Some interest developed during the year in the organization of a cow testing association and the indications are that such an association will shortly be organized.

Diseases.— Contagious abortion has caused serious loss in the Valley for a number of years. While the losses in 1915 were less severe than formerly, there was nevertheless considerable damage. Disinfection and sanitation are the measures recommended. Tuberculosis is not known to be present to a great extent, but very little testing has been done. In three herds, including 62 head, tested during the year, one reactor was found.

Marketing.— Nearly all the milk and butter fat produced on the project is sold to local creameries or cheese factories. There are cooperative creameries at Nampa, Boise and Caldwell, and a cooperative cheese factory at Meridian; and privately owned creameries at Nampa, Boise and Caldwell. A cooperative cheese factory was operated at Parma during the first part of 1915 but was closed in the autumn. Figures were secured indicating that a total of 1,186,451 pounds of butterfat was marketed during the year at an average price of about 27 cents, the total value being \$322,233. The cooperative cheese factory at Meridian paid an average price of 29 cents for butterfat and the price paid by the creameries privately owned and cooperative, varied from $25\frac{1}{2}$ to 28 cents. It is estimated that the average butterfat content of the milk supplied to these plants was 3.8 per cent, and of the cream 29.7 per cent. No cow census has been taken by any of these companies except the Nampa Cooperative Creamery, which, in August, 1915, was receiving milk from 1,470 cows, of which the average butterfat production in that month was 16 pounds.

The Beef Industry.

The Reclamation Service figures indicate that the beef cattle population of the project was 1,059 in 1915, as compared with 751 in 1914, but these figures, it should be remembered, do not include the entire irrigated district. Practically all the beef cattle are range stuff, much of which is inferior. There is but one pure bred herd of any size. This is a herd of Herefords, containing 130 head of high class animals. There are a few pure bred Shorthorns which are commonly called "Durhams". The demand for these is due

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Live Stock Industries on Boise Project (continued).

largely to their supposed dual-purpose nature. There are two fairly good herds of Red Polls, aggregating about 100 head, and a few Angus.

Late in the year interest developed in the matter of securing outside range for cooperative grazing purposes. A movement was started in the water users' association looking towards securing a part of the open range in Owyhee County. The matter of using some of the available range in the Boise National Forest was also investigated. The best development of the beef industry requires satisfactory and inexpensive summer range.

During the fall of 1915 blackleg was unusually prevalent. A total of 172 head of cattle were vaccinated for the farmers, and, in addition to these, 500 doses of vaccine were distributed to be used directly by the cattle owners.

The Sheep Industry.

The Reclamation Service reports 11,200 sheep on the project at the close of 1915. The high prices for mutton and wool during the year stimulated a strong interest in the sheep industry. There are no very large holdings except the bands brought to the project for feeding purposes, most of the flocks which are kept on farms containing from 30 to 300 head. The majority of the sheep are grade Shropshires and Hampshires, but there are a few bands of good pure breds. One farmer is said to have one of the best Hampshire flocks in the United States. This flock includes 165 breeding ewes. The owner is reported to have contracted to sell all the ram lambs for the next five years at approximately \$25.00 per head. This farmer lambs in January and February, and with good pasture and hay and grain, excellent lambs are produced. Hampshire rams are used extensively on Cotswold ewes. Shropshire rams are also in good demand. There is some winter feeding of range sheep on the project. One bunch of approximately 4,000 head fed near Wilder during the winter of 1914-15 is reported to have paid a return of \$18.00 per ton for the hay consumed. There has been little loss from diseases or parasites among sheep during the year. One case of liver fluke was found and diagnosed by a federal veterinarian. There was an occasional case of stomach worms.

The prices for both mutton and wool ruled high during the entire year. Wool sold locally at from 17 to somewhat more than 20

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Live Stock Industries on Boise Project (continued).

cents. Lambs averaged about \$7.50 per cwt. at Portland during most of the season. A total of 210 carloads are known to have been marketed from the valley during the year. Most of the mutton was shipped to Chicago but there were some shipments to Portland, Seattle, Omaha, San Francisco, and Del Rio, Texas. Practically all the wool went to Chicago or Council Bluffs. Records were secured showing the shipment of 48 carloads of wool.

Summary.

From March 1 to the end of the year, 575 farm visits were made and 881 persons were consulted. The calls at the office numbered 224 and the requests for assistance 535. Twelve circular letters and 9 newspaper articles were issued. There were 55 meetings, at which the total attendance was 1,630. The herds of hogs inspected for cholera numbered 136. Cholera was found in 40 herds and treatment applied in 31 herds to 1,978 hogs. Blackleg treatment was applied to 172 head of cattle. Assistance was given in connection with the construction of 13 silos and with the filling of 4 additional silos. Assistance was given in the selection of 125 head of cattle, including 2 pure bred bulls.

Huntley.

During the week ending March 18, three farmers' institute meetings were held on the project. The principal speaker, Mr. Harmon, of Bozeman, was furnished by the Extension Department of the State College. Crop and soil problems were discussed at each meeting. An attendance of twenty farmers was secured at Osborn, three at Worden, and eight at Pompeys Pillar.

One case of suspected hog cholera was investigated. Rheumatism and inadequate feeding were found to be the cause of the trouble.

Considerable progress was made during the week toward starting the proposed cheese factory at Ballantine. A site was selected and contracted for. A contract for building the factory was let to a local contractor and most of the equipment will be ordered within a few days.

1 April, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre.

During the week ending March 18, 16 farm visits were made and six requests for services received.

On Tuesday, Prof. Olin, of the D&RG railroad, Professors Sandsten and Litz, of the Colorado Agricultural College, and Mr. Hutton, the crop reporter for the state, were on the project for the purpose of organizing the potato growers with the idea of improving the quality of the commercial crop. Organizations at Montrose, Olathe, and Delta were perfected.

The farmers are cooperating in sending hogs to the Denver market, 4 farmers having recently sent 2 carloads, including 165 head. They brought \$9.40 per cwt. at Denver, or \$8.65 on the project. In this case, it cost 75¢ per cwt. to put them on the market. This includes the shrinkage.

Butterfat prices at the local creamery advanced the first of the week from 28 to 31¢. Outside creameries are offering 35¢ to try to induce the western slope dairymen to ship to them. Considerable cream is going to Colorado Springs and Pueblo as a result.

Tieton.

Fourteen farms were visited during the week ending March 18.

A visit was made to the Sunnyside Cooperative Creamery. Mr. Bowman, the manager, reported that the plant is making from 22,000 to 23,000 lbs. of butter per week. Most of this is sold to the Hazlewood Company at Spokane and is retailed as fancy butter. A Seattle market is being gained, which, it is hoped, will take care of the maximum output during the spring and summer. Farmers will be paid a premium of 2 cents per lb. for sweet cream which will be pastuerized and shipped to Spokane during the summer months.

Local commission men are paying \$27.50 per ton for potatoes and are offering to contract for April 15th delivery at \$35. Alfalfa hay is selling from \$18 to \$21 per ton. Prime hogs are reported as follows: North Yakima, \$7.75; Portland, \$9.00; Rolled oats are selling at \$34 per ton; rolled barley at \$35; wheat at \$33.50; corn at \$36.50; bran, shorts and middlings at \$25.50, \$28, and \$32.50, respectively.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka.

The Minidoka Project Range Association was completely organized at Burley on Monday, of the week ending March 18. Officers were elected, committees appointed and constitution and by-laws adopted. Preliminary meetings had formerly been held at both Rupert and Burley. Forest Supervisor Campbell was present and assisted in forming the organization and in drawing up the constitution and by-laws.

A seed and live stock meeting at Marshfield on Wednesday evening brought out the largest crowd of the year, the total attendance being 142. Of this number, 26 were interested in growing clover or alfalfa seed, although only 11 contemplate growing any seed this year. One man will have 80 acres of clover seed while the others will have from 4 to 20 acres each.

On Thursday the committees of the cream producers met at the Rupert Commercial Club Rooms. They reported that their efforts to secure a majority of the cream producers for their co-operative cream association had been unsuccessful. Mr. Frevert, of the Dairy Division, was delayed and could not be present at this meeting, so definite action was postponed for one week.

A call to investigate sickness in hogs at the farm of Mr. Franklin, of Jackson, was the first call of this nature to be received from this district. Dr. Henderson, of the Bureau of Animal Industry, was present at the investigation. While the disease somewhat resembled cholera, there were no high temperatures, all being sub-normal. The trouble was finally diagnosed as meat poisoning, the hogs having been allowed to eat the carcass of a horse that had died of forage poisoning.

8 April, 1916.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

During the week ending March 25, the maximum temperature was 99; minimum temperature, 39; and the greatest daily range, 44.

Early in the week corn was planted on B4 in rows from 5 to 7 feet apart to duplicate as nearly as possible the distance-between-row test conducted during the year 1915. The soil was in exceptionally dry condition and it may be necessary to replant later.

The pasture fence surrounding D4 and D5 was completed during the week. The pasture will be as heavily stocked as the farm animals will permit to determine the effect on the growth of the Johnson grass.

Ground about the superintendent's cottage was graded and made even in preparation for starting a Bermuda-Rescue grass lawn.

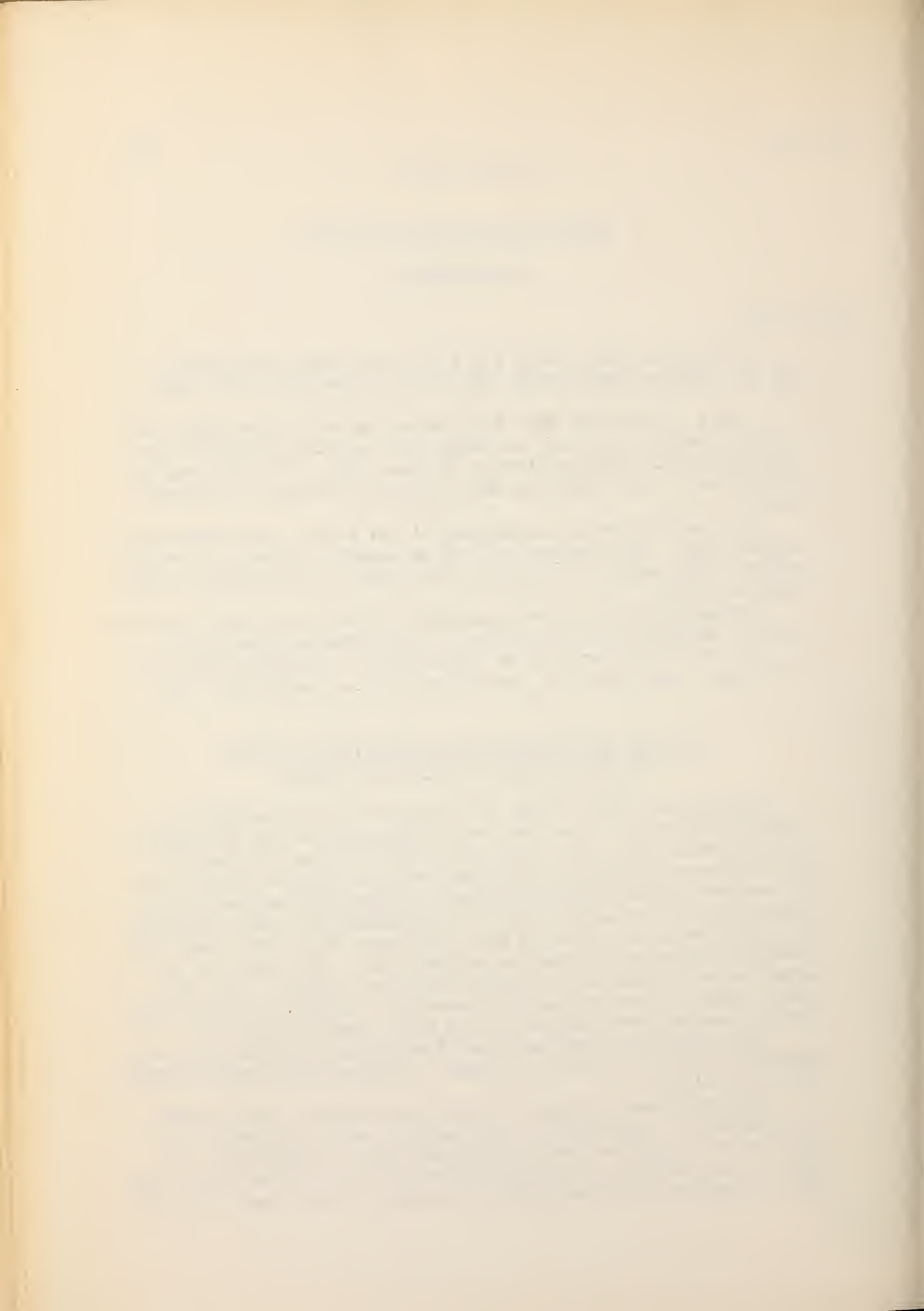
Mr. C. R. Letteer left on Thursday for Washington where he will spend three weeks in completing soil and manuscript work.

A Report on Pasturing Yearling Steers on Oats
at the San Antonio Experiment Farm.

During the fall of 1915 an experiment in the pasturing of yearling steers on winter oats was inaugurated at the San Antonio Experiment Farm. In accordance with the plan six quarter-acre plats were planted to oats as early as possible in the fall. Dry weather prevailed until October, so that the oats were not planted until October 21, 1915. By December 20, oats had grown to sufficient size to afford fair pasturage and on that date two yearling steers were turned on to the oats. The total one and a half acre of oats were divided into three pastures, the different pastures being grazed in rotation. Changes from one pasture to another were generally made at bi-weekly intervals.

The two steers were purchased from a local stockman and were moderately thin at time of purchase. They were Red Polled grades of fair quality.

Pasturing was continued without interruption from December 21 to March 6. By March 6, the pastures were eaten very close and due to drought no growth had taken place for some time, so that it was necessary to remove the steers from the pasture. During the interval from December 20 to March 6, the steers received



8 April, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued).

no feed in addition to that furnished by the pastures. They made good gains throughout the entire period, although the gains during the last two weeks were at a slightly slower rate than during the first part of the experiment.

The following tables shows the weights of the two steers at the beginning of the experiment on December 21 and at the time of their removal from pasture on March 6, and the total and average daily gains made during the entire period of 76 days.

Steer No.	Weight, pounds		Gain, pounds	
	Dec. 21	March 6	Total	Av. daily
1	444	614	170	2.24
2	499	662	163	2.15

The gains of 2.24 and 2.15 pounds per day are certainly very good. The steers were fat and sleek and would have made good beef at the close of the pasture period.

The steers were weighed at weekly intervals throughout the experiment. The weights from December 21 to January 24 were reported in the Weekly Bulletin of February 5, 1916. The weights of the two steers at weekly intervals from January 24 to March 6 are shown in the table below:

Steer No.	Weights, pounds							No. Days	Gains, pounds	
	1/24	1/31	2/7	2/14	2/21	2/28	3/6		Total	Av. Daily
1	522	526	548	584	586	613	614	42	92	2.2
2	590	574	594	624	644	634	662	42	72	1.7

The gains of 2.2 and 1.7 pounds are very good, considering the unfavorable crop growing conditions during this period.

It is estimated that these steers are now worth on the local market at least \$6.50 per hundred weight, and that they were worth at the time of purchase about \$6.00 per hundred weight. Using these values as a basis for calculating the value of the gains we have the results given on the following page.

8 April, 1916.

WESTERN IRRIGATION AGRICULTURE
Field Notes.

San Antonio (continued)

Steer No.	Weight at beginning	Value	Weight at close	Value	Value of gains made
1	444	\$ 26.64	614	\$39.91	\$ 13.27
2	429	29.94	662	43.03	13.09
Total	943	56.58	1276	82.94	26.36

It is seen that the total value of the gains made by the two steers is \$26.36. No feed was given in addition to the pasturage furnished by one and a half acre of oats and the value of the gains made represent the value of that area of oats for pasturing animals such as were used. Reduced to an acre basis, the value of the pasture was \$17.57 per acre.

The past winter has been exceptionally dry and the oats have made much less growth than usual. Oats planted on November 7, on other plats on the station and not pastured made very poor growth during the winter, being only 5 or 6 inches high on March 6 and a large portion of the plants were badly fired and nearly dead as a result of drought.

The field on which the oat pastures were located grew grain sorghum during 1915. The sorghum continued growth until plowed under during the first part of September so that the ground was dry when plowed. Plowing of the field was completed on September 9. There was 3.21 inches precipitation during September, but the land did not contain sufficient moisture for planting on September 25, so that planting was delayed until rains came in October, the oats being planted on October 21. Since October 1, the total precipitation to date has been 6.17 inches and since the oats were planted on October 21, the total precipitation has been 4.27 inches.

Belle Fourche.

During the week ending March 25, the maximum temperature was 70, minimum temperature, 10; precipitation, .38.

Field work was commenced March 13. The ground is in excellent condition and has sufficient moisture to start all crops. The north half of Field O, to be planted in grain varieties, has been double disced and leveled. All the plats in the irrigated rotations to be planted to crops this spring have been double

8 April, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Belle Fourche (continued).

disced. The land above the ditch in field P was planted to sixty-day oats on the 18th, and A III-37-48, inclusive, were seeded March 23 to White Russian and Pete Edwards oats for increase of seed. The ground in the old orchard to be planted to pasture mixtures has been doubled-disced and leveled and is ready for planting. The seeding of last year's pasture mixture has been manured at the rate of twenty loads to the acre.

A cow testing association has been organized on the project.

Scottsbluff.

Under date of March 25, Mr. Knorr reported as follows:

The week ending March 25 gave us all of the weather that one could expect during the year. On Monday, we had spring weather; on Tuesday, we experienced the hardest and most terrific sand and wind storm that we have ever had in this section; on Wednesday, the weather was as hot as any day in the summer; on Friday, we had a severe snow storm with rather blizzard weather during a portion of the forenoon; Saturday, it was much colder than it has been any time during the week, but otherwise the weather was nice.

One man with 3 horses was kept busy the greater part of the week plowing plats on field K. A portion of the time another man with 3 horses was discing plats in the same field. One team was used for discing and preparing field I, series 1, where spring wheat varieties were seeded on the 23 rd.

If the weather permits, we hope to get in most of the barley and dry land wheat the first week of April.

Under date of April 1, Mr. Knorr reported as follows:

During the week we had one light snow storm, followed by a drop in the temperature to 19 degrees; after this it again warmed up and we were again able to do field work.

The dry land plats have all been put in shape, and we are ready to begin the seeding of wheat on the dry land. The wheat plats in field K have also been put in shape and is ready to be seeded next week.

The spring wheat varieties that were seeded last week have not as yet sprouted, the soil being too dry to germinate the grain.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff (continued).

A little over half of field D has been fenced and is nearly ready for the hog pasture work for the coming season. If the warm weather continues we hope to be able to put the hogs on the alfalfa earlier than we did last year.

The grasses in the grass garden are making a good growth. The Tall Oats and Brome Grass are making better growth than the other grasses. The White Clover suffered very severely during the winter; this is badly frozen out in the grass garden on the pastures as well as on the lawn, but enough remains, however, we believe, to get some results this year.

Belle Fourche.

During the week ending April 1, the maximum temperature was 65; minimum temperature, 13; precipitation, .59.

The plats in the irrigated rotations to be planted this spring in series I and II were leveled. All spring planted plats in the dry land rotations were double disced. During the last four days of the week, no field work was done due to the rain and snow. It will probably be a week or more before field work can be resumed.

On Saturday, four representatives of the Great Western Sugar Company were at Newell. They have decided to grow about 500 acres of beets on the Project this summer as a preliminary trial. These beets will be shipped to Scottsbluff, Nebraska. The company will have a field man on the Project to look after the growing of the beets, furnish seed and drills, and pay \$4.50 per ton at the railroad stations. The acreage will be distributed over the Project to find out what the various types of soil will produce. The company will also provide for the hand labor by contract as in the beet growing sections.

Yuma.

During the week ending March 18, temperatures were recorded as follows: Maximum, 99; minimum, 47; and greatest daily range, 50. Thirty-two acres were irrigated. The ginning of experimental plats of cotton grown during 1915 was begun. Leveling on C series 30 to 35 was continued.

Some extra labor was employed during the week for hoeing of sour clover from irrigation ditches and general hoeing of dates,

8 April, 1916.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma (continued).

pecans, melons, garden, strawberries, flax plantings, etc.

The hog pasturing experiment on a 1/4-acre plat of alfalfa and barley in field E-8, in which a 2 per cent ration of cracked milo is being fed to the 4 hogs supplementary to pasturing, is reported below, the gains being valued at 7 cents a pound, and the cracked milo at 1 cent a pound:

Dates		No. of days	Weights, Lbs.		G a i n s			Pounds milo fed	Net return per acre
Initial	Final		Initial	Final	Total	% Daily	Av. per day per hog, lbs.		
2/9	2/16	7	354.3	384.5	30.2	1.17	.719	49	\$6.50
2/16	2/23	7	384.5	412.0	27.5	.99	.6547	54.5	5.33
2/23	3/1	7	412.0	444.0	32.0	1.07	.7616	57.7	6.65
3/1	3/9	8	444.0	475.0	31.0	.85	.6458	70.0	5.88
3/9	3/15	6	475.0	504.5	29.5	1.01	.8193	57.0	5.98
2/9	3/15	35	354.3	504.5	150.2	1.02	.7151	288.0	30.54

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Huntley.

During the week ending March 25, a swine feeding test was started on Mr. Myer's place. Records of feeds and gains will be kept on twenty-two shots until marketed or as long as conditions will permit. These pigs are now receiving only a little better than a maintenance ration of corn. They will probably remain on this ration until alfalfa pasture becomes available when they will be made ready for market as rapidly as possible and will receive a ration of alfalfa pasture and corn or other grain.

On account of the very high price of seed this year it is feared that some of the farmers who contemplated seeding a few acres of pasture this spring will not do so. However, there will be some pasture seeded this spring, enough to furnish a very good demonstration of its worth.

The Ballantine Cheese Factory Association has been incorporated under the name of the "Ballantine Dairy Products Association", with

8 April, 1916.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

an authorized capital stock of \$25,000. Some details of the organization are yet to be attended to, but no serious difficulties are expected along this line. A factory building is now in process of erection. Some delay is being experienced in getting equipment ordered and it is very likely that the opening of the factory will be delayed on this account. For some unaccountable reason it has been difficult to get the board of directors of the association to see the importance of getting their equipment ordered early.

Uncompahgre.

During the week ending March 25, 10 farm visits were made and two new tests of hog feeding were started.

A trip was made to Delta during the week for the purpose of visiting the orchard men on Garnet Mesa. Four farm visits were made during the day in company with Mr. Richardson, the Delta County Horticulturist. In the majority of cases, clover is being sown between the trees for use as hog pasture.

Seven carloads of hogs were sent to Denver during the week from the shipping points on the Project. The prices received have not yet been learned. Fourteen farmers cooperated in these shipments.

Four carloads of steers fattened on silage and alfalfa were sent to the Kansas City market the latter part of the week. These animals were well finished. This is a new industry for the Project farmers and has attracted wide attention.

One farmer is feeding 23 old cows on silage and alfalfa for the local meat market. The feeding period is to cover 5 months. The cows, all of good type, were very thin at the beginning and weighed in at an average of 875 lbs. The farmer received them at 4¢ and will sell them back at the end of the period at 5¢. They are consuming 30 lbs. of silage and 12 lbs. of hay per day each. It is planned to put 300 lbs. gain on each cow during the 5 months. If this can be done the farmer will realize \$7 per ton for his alfalfa and \$6 for silage. Besides this he has the manure on his farm.

Eight dairymen met at the office Friday and perfected plans for bringing in 27 Holstein heifers from Utah.

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Uncompahgre (continued).

Butterfat is 31¢. Outside creameries are offering 37¢ and 39¢. Wheat is selling for \$1.50 per hundred and corn for \$1.75.

During the week ending April 1, 13 farm visits were made. One hog feeding test was started and arrangements were made with two farmers to carry on herd testing.

On Monday a test was started with Mr. Lewis in the feeding of a pen of thin hogs with the idea of finishing them as rapidly as possible on wheat.

The hogs sent to Denver last week brought very good prices. One car of well finished hogs brought \$9.50, topping the market. The others brought \$9.35.

Butterfat has increased in price to 33¢ at the Montrose creamery.

Shoshone.

Under date of April 3, Mr. Dan Hansen reports in part as follows regarding a trip recently made from Huntley to the Shoshone Project, in connection with the establishment of irrigated pastures by Shoshone farmers:

"Two days were spent in company with Mr. Magruder in visiting 12 of the 16 farmers who expect to start pastures this season. Most of these men have never had experience in growing pastures under irrigation and will follow closely the methods used at Huntley as to planting and mixtures, while a few will plant mixtures or separate grasses which they have grown before. These, however, do not differ greatly from the grasses grown at Huntley. There will probably be a total of over 40 acres planted, in areas ranging from 1/4-acre to 10 acres, on the different farms. These plantings will be well distributed over all parts of the Project and will be on all the different types of soil, so that it will be a good thorough test."

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

During the week ending April 1 the maximum temperature was 90; minimum temperature, 36; greatest daily range, 48. On Friday night, .53 inch of rain fell.

Practically the entire week was spent in cleaning up the grounds, yards and lots.

The rain of Friday night was not sufficient to moisten the ground for the germination of cotton seed, but it will help bring through the backward rows in the milo and sorghum plantings.

Field peas are now flowering and setting fruit in spite of the dry conditions though some varieties are superior to others in this respect. The two varieties, Kaiser and Grey Winter, which withstood the winter temperatures best and which are very much alike, seem also to be holding up better under the prevailing dry conditions. Kaiser and Grey Winter are the only types with reddish flowers in this year's planting. It has been noticed in cotton and other plants that types resistant to low temperatures also resist dry conditions most successfully. This may also be true of field peas and other crop plants.

Truckee-Carson.

During the week ending March 25, the maximum temperature was 69; minimum temperature, 20; precipitation, .21 inch.

During the week ending April 1, the maximum temperature was 70; minimum temperature, 23.

The following report of work covers the period from March 20 to April 1, inclusive:

The leveling of field B, cleaning irrigation ditches, and making and installing irrigation boxes was continued throughout this period.

The variety tests of peas, carrots, parsnips, onions, and turnips were planted on B3.

Plats O-1, O-2, E-4, 5 and 8 were seeded to barley and sweet clover.

The following varieties of barley were planted on the farm of W. H. Williams: California Feed, Hannchen, Hullless, Svanhals, Kents and Chevelier. The area of the field is $8\frac{1}{2}$ acres.

A planting of the following varieties of wheat was made on the farms of Tom Dolf and W. H. Williams:— Little Club, Rieti, Bluestem,

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Truckee-Carson (continued).

Defiance, Marquis, Sonora, Dicklow and Ghirka. The area of Dolf's field was about 7 acres and of William's field about $2\frac{1}{2}$ acres.

Five hundred pounds of gypsum was spread on $1/8$ -acre of land on the farm of Dan Evans as a demonstration of the effect of gypsum on hard, crusty soil. This plot lies close to the road and the results secured can be easily seen by the public.

A shipment of varieties of fruit trees was received from the German Nurseries of Beatrice, Nebraska, and planted in A-1, 2 and 3. The collection consisted of:

24 varieties of apples	10 varieties of raspberries
7 " " peaches	6 " " gooseberries
11 " " plum	8 " " currants
7 " " cherries	7 " " blackberries
8 " " pears	3 " " walnuts
11 " " grapes	2 " " chesnuts
1 variety of mulberry	

Nursery stock was received from the office of S. P. I. as follows:

2	<u>Berberis chinensis</u>	36737
3	<u>Berberis sieboldii</u>	13353
3	<u>Indigofera kirilowii</u>	18609
2	<u>Lonicera deflexicalyx</u>	40186
3	<u>Lonicera trichosanthe</u>	40185
3	<u>Lonicera sp.</u>	
2	<u>Osteomeles schwerinae</u>	40033
3	<u>Tamarix pentandra</u>	34804

The smaller specimens were planted in the greenhouse and the larger ones put in permanent locations in field A-1.

Scottsbluff.

For the week ending April 8, Mr. Knorr reported as follows:

On account of the bad weather that prevailed during the week we have not been able to do much field work.

The present outlook for alfalfa is not very encouraging in many sections of the Project. The Army worm is cutting down the new growth as fast as it comes up. On the station farm we have not been bothered very much, but the cut worms are more numerous than previous years, and considerable damage is being done to the new growth of alfalfa.

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Field Notes.

Yuma.

During the week ending March 25, temperatures occurred as follows: Maximum, 94; minimum, 31.5; and greatest daily range, 42. A precipitation of 0.30 inch fell during the week. Eighteen acres were irrigated.

The ginning of the 1915 crop of experimental cotton was completed. Progeny selections were ginned for planting.

All the seedling date palms in orchard plantings were pruned. Many of the oldest of these seedlings have been flowering this spring, the earliest male flowers opening several weeks ago.

Forty-five additional varieties of ornamental plants representing twenty-four different varieties and species were received for ground plantings, from the Austin Nursery Co., Austin, Texas, and Fancher Creek Nursery Co., Fresno, Cal.

Russian Olive trees growing in nurseries were transplanted to vacancies in Eucalyptus rows around the farm roads. It has been found very difficult to establish re-plant plantings of small Eucalyptus trees in vacancies in a row where the large trees are already established nearby.

Mr. T. H. Kearney visited the Experiment Farm March 20.

During the week ending April 1, the following temperatures were recorded: Maximum, 90; minimum, 38; greatest daily range, 48. Fourteen acres were irrigated.

Sudan grass on E-5&6 has volunteered through the winter with nearly a perfect stand. This field was clipped and will be held for hay production yield for the second year.

The first cutting of alfalfa was harvested from 16 plats, giving field cured yields ranging from 0.766 to 1.32 tons per acre, the average being 1.016 tons. The first crop of hay over the project as a whole is very good. A few first crops of alfalfa are being left stand for seed.

A visit was made to the farm of Mr. W. B. Cloyd, where the original block of Peruvian alfalfa planted by Mr. Cloyd is still standing. The stand has been damaged by close pasturing last season, but many new plants have come in from shattered seed.

Messrs. Roland McKee and H. B. Reed, of the office of Forage Crop Investigations, arrived March 29. Mr. McKee spent two days at the Experiment Farm while Mr. Reed remains for the season's work with forage crops.

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WESTERN IRRIGATION AGRICULTURE Field Notes.

Scottsbluff.

Under date of April 5, Mr. Knorr submitted the following report, entitled "Dairy Report Scottsbluff Sub-station for the Month of March":

Considering the changeable weather we have had during the month the cows did remarkably well. The Jersey grade cow, known as "Wonder" was shot as she was tubercular, as we thought best to dispose of her rather than to contaminate the rest of the animals.

The later part of February we concluded to try a small pit silo, putting into this dry corn fodder. We dug a hole about 6 ft. in diameter and 7 ft. deep, and put into this some of the old stover or corn fodder that we had on the place, together with a small amount of alfalfa hay. We used plenty of water, running the water into the carrier, at the point where the feed comes out of the ensilage cutter. This silo was opened the 28th of March, and the feed is coming out in excellent condition, smelling as sweet as any ensilage made of sweet corn. The cows eat it very readily and greedily, and indications are that they are going up in their milk supply.

The butter fat has been selling higher this month than any time since we started the dairy work. Of course, we do not know how long these prices will maintain.

The following is a table giving the result of the past month's work:

		S K I M		M I L K	
		Total		Value	
		Pounds		at 25¢ per cwt.	
	Mabel..	986.73		2.47	
	Rose...	500.65		1.25	
	Wonder.	468.56		1.10	
	Marie..	676.64		1.69	

Lbs. Milk	B u t t e r F a t					Hay	Stover	Cotton seed meal value	Corn Meal Value	Profit
	Av. Test	Total	Market price	Value of	Cost of					
Mabel				\$	\$			\$		\$
1160.86	3.1	35.92	32¢	11.52	14.3	2.54	30¢	1.91	41¢	6.37
Rose										
589.0	4.1	25.15	32¢	8.05	19.5	2.54	30¢	1.70	36¢	3.15
Wonder										
515.95	4.0	20.64	32¢	6.60	13.7	2.54	30¢			3.76
Marie										
796.05						2.54	30¢	1.90	41¢	

Hay is figured at \$5.00 per ton; stover at \$1 per ton; cottonseed meal at \$47 per ton, and corn meal at \$1 per cwt.

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Huntley.

During the week ending April 1, fifty-six calves were vaccinated against black-leg.

The Ballantine Dairy Products Association has ordered the equipment for the proposed cheese factory. It is very likely that everything will be in readiness for the opening of the factory by the time the equipment arrives, not later than May 15. The final steps for the incorporation of the association have not yet been taken, but it is believed that this matter will be attended to in a short time.

On March 29, a sale of Holstein cows, brought in from Missoula, Montana, was attended at Ballantine. In spite of the apparent demand for cows on the Project, these cattle did not sell readily. Only a small part of the offering was disposed of. Some were sold at auction and some at private sale. It was reported that not more than a dozen of the car load were sold on the Project.

Shoshone.

During the week ending March 18, 12 farm visits were made, and 13 calls were received from farmers.

The annual meeting of the stock holders of the cooperative creamery was held. None of last year's directors were re-elected, but no dissatisfaction was expressed concerning the management. While the management of the creamery seems to be satisfactory, its supply of cream is too limited to afford much profit. There seems to be a tendency for the farmers to go into the sheep and beef business, and the merchants on the Project who buy cream for the centralizer draw trade by giving at times better tests and prices than the cooperative creamery can give.

Truckee-Carson.

During the week ending April 1, 16 calls for assistance were received and 9 visits were made to farms in response to calls.

A visit was made to the University of Nevada to confer with officials of the veterinary department relative to work which has been contemplated in connection with testing for abortion on this

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Project. A conference was also held with the extension department relative to the boys' and girls' clubs on this Project.

The gravity of the situation with respect to abortion is now receiving considerable attention on the part of the veterinary department, and definite action has been started in testing for animals affected with abortion with a view of preventing the spread of the disease. The veterinary department also has in mind some immunization work which they contemplate carrying out on a large number of animals which react to the complement fixation and agglutination tests. A number of aborted fetuses have been forwarded to the laboratory of the University for analysis, and have shown the presence of the abortion organism. Samples of blood have been taken from thirty animals of one herd so far for abortion determinations.

It is evident that no relief will be had from contagious abortion in this locality until a campaign is waged against the disease by all owners of cattle. About one year ago there were evidences of abortion on every hand, but the trouble later abated somewhat, only to show up as strong as ever during the last month or two. Herds once free have become infected by the introduction of aborting animals. It is hoped that in time all the dairymen will call for abortion tests on their herds so that any infection may be discovered and the disease kept from spreading in so far as possible.

Minidoka.

During the week ending March 25, work on the cooperative creamery association at Rupert was practically completed for the winter at a meeting held Thursday afternoon. But very little has as yet been accomplished with this association. Because of the failure of the professionally promoted creamery here, the people are still skeptical and the majority of them refuse to cooperate. The committees from the Paul and the Pioneer Districts, however, reported good prospects and a favorable sentiment for a cheese factory at Paul. It is possible that a factory may be opened there late this spring or in the early summer.

A heavy snow fell Wednesday night and Thursday forenoon which was reported as being from eight to twelve inches deep on different parts of the Project. There were 2600 head of Project cattle and approximately 30,000 head of Project sheep on the open range, some of the flocks being twenty miles out. There was some loss of lambs, this loss being quite heavy in a few outfits.

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Minidoka (continued).

CLOVER SEED PRODUCTION IN THE TWIN FALLS COUNTRY IN 1915.

A report on the production of clover seed on the Twin Falls South Side tract in 1915 has been issued recently by the Superintendent of the Twin Falls Experiment Station. According to this report, there were harvested for seed on this tract in 1915 about 572 acres of white clover, 16,892 acres of red clover, and 9,995 acres of alsike clover.

Detailed data were secured from 25 fields, including 4 of white, 7 of red, and 14 of alsike clover. From these fields the following figures are reported: The size of field ranged from 4 to 50 acres. The seed yields of white clover ranged from 5.5 to 8 bushels per acre; of red, from 4.5 to 9.2 bushels per acre; and of alsike, from 7.9 to 16.67 bushels per acre. Prices were high. White clover (cleaned) brought from \$19.80 to \$21.60 per bushel; red clover (cleaned), from \$9.15 to \$12.00 a bushel; and alsike (cleaned), from \$6.90 to \$8.70 a bushel. The gross returns per acre of white clover ranged from \$109 to \$184; of red, from \$40 to \$93; and of alsike, from \$36 to \$147. After the cost of growing, harvesting, and threshing were deducted, the returns per acre of white clover ranged from \$94 to \$168; of red, from \$33 to \$78; and of alsike, from \$20 to \$120.

Tieton.

Seventeen farms were visited during the week ending March 25; 77 head of young stock were vaccinated for blackleg, in 5 herds; two demonstrations were given in the use of the blackleg vaccinating outfit.

Milk was tested on three farms, 4 calls for assistance were answered, 3 visits were made to discuss dairy products, and some assistance was given the organization of boys' and girls' clubs.

Shoshone.

During the week ending March 25, 16 farm visits were made, and 15 calls were received from farmers.

At a public sale 9 sows with litters of from 8 to 12 pigs, two or three days old, were sold at from \$14.00 to \$21.00 each.

This week was devoted mostly to milk testing and records and

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

to discussing mixed grass pastures with farmers. The prospects are bright for some good pasture tests this season.

Minidoka.

Most of the cattle in the cooperative range association were branded during the week ending April 1. Each herd carries an individual brand. There is also an association brand, a bar on the left side of the neck. The association brand and most of the individual brands are recorded.

The calls in regard to litters of pigs born without hair and sows eating their pigs have been very numerous this spring. This was expected because of the hard winter with the ground frozen and covered with snow. During the past five years this trouble has been most common in those sections where the brood sows cannot rustle a certain proportion of their own feed.

Mr. Johnson, Manager of the Community Farm at Mountain Home, spent two days on the Project this week. He was assisted in buying a registered Holstein bull from Mr. Barclay of Burley and was put in touch with farmers who had raised good oats and barley last year. 6,000 pounds of California Feed Barley and 2,500 pounds of Swedish Select Oats were purchased and shipped to Mountain Home for seed. Mr. Johnson pronounced this the best seed he had been able to find. The barley and oats were bought from three farmers on the North Side at \$2.00 per cwt., f. o. b. Rupert.

Three meetings were held this week, at Jackson, Acequia, and Paul. The total attendance at the three meetings was 146.

Butter fat is now 33¢. Fat hogs are selling for \$7.75.

AMERICAN WORMSEED OIL AS A WORM REMEDY.

Some dissatisfaction with American wormseed oil as a remedy for worms in hogs was reported by some of the field men at the close of the year 1915. The reports indicated that it was very difficult to make the hogs take the oil, even after they had been starved for 24 hours. On February 9, a letter was written to Mr. George Rommel, Chief of the Animal Husbandry Division, calling to his attention the fact that the American wormseed oil had not given as satisfactory results as had been expected. The following is a copy of Mr. Rommel's

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American Wormseed Oil as a Worm Remedy (continued).

reply: . . .

April 10, 1916.

Mr. F. D. Farrell,
Office of Demonstrations on Reclamation Projects,
Bureau of Plant Industry.

Dear Mr. Farrell:

I referred your letter of February 9 concerning the use of American wormseed oil as a treatment for worms in hogs to some of the men interested in this subject, and have received comments from several of them.

We have used this treatment in our work at the U. S. Experiment Farm at Beltsville, Maryland, and have found it about as effective as the other worm remedies such as coal oil, santonin treatment, etc. When given with a mash after starving the hogs for a 24-hour period, they have always eaten some of the mash, but in no case have they entirely cleaned up the feed. We never mix the oil with a full feed, but reduce the feed to an amount which is likely to be cleaned up.

We have also recommended this treatment to farmers over the State of North Carolina, and while we have no definite cases to cite, one of our men has heard farmers remark that it was an effective cure.

The Zoological Division has recommended the following change in this treatment:

A tablespoonful of castor oil, to which has been added oil of American wormseed as follows:

Small pigs, 2 to 3 months old.....35 drops

Pigs weighing 50 to 100 pounds.. 50 to 100 drops

Larger pigs.....One teaspoonful.

Owing to the uncertainty of the effect of small quantities, the doses of castor oil may be increased above the tablespoon dose until the desired effect is obtained.

Owing to the fact that worm seed oil as a remedy for worms in hogs is still in an experimental stage, we do not wish to claim for it anything more than that under experimental conditions it has been found an efficacious remedy.

We will be glad to receive any further information on this treatment which you may obtain from your field men.

Very truly yours,

Geo. M. Rommel,

Chief, Animal Husbandry Division.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

The week ending April 8 was cool throughout, the maximum temperature for the week being 80. The minimum temperature was 35, and on the morning this temperature was recorded, April 8, slight frosts were present in low places and ice formed at the ground level. The greatest daily range was 31.

Early in the week 14 rows of Mr. G. N. Collins' select sweet corns were planted. Two rotation plats on A4 were planted to Orange sorghum. The only other field work was that of hoeing weeds.

Corn on plats in A6 and B6 was decidedly frost bitten but none killed during the night of April 7.

Flax is rapidly maturing, some of the early planted rows already having ceased to flower. All types are setting an abundance of fruit.

Spanish Pistacia trees have set considerable fruit this year.

Truckee-Carson.

During the week ending April 1, the maximum temperature was 76; minimum temperature, 26; precipitation, .16 inch.

On April 7, Arbor Day exercises were held at the east end Fernley school. The following trees and shrubs were furnished by the Experiment Farm:

- 18 Norway poplars
- 12 Chinese poplars
- 12 Black locusts
- 12 Tamarisks
- 3 Laurel leaved willows
- 1 Karagash elm
- 1 Box elder
- 1 Ash

Arbor Day exercises were held at the Sheckler school on April 8. The trees furnished by the Experiment Farm were:

- 12 Norway poplars
- 12 Tamarisks
- 12 Chinese poplars
- 1 Russian oleaster

On April 6 Mr. Headley, accompanied by Mrs. Meskimmons, of the University of Nevada, visited several schools near Fallon for the purpose of organizing boys' and girls' garden, dairy and pig, and domestic science clubs. Over 50 per cent of the pupils enrolled in one or more of the clubs.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff.

The following report for the week ending April 15 has been submitted by Mr. Knorr:

Everything is beginning to be extremely dry, and unless there is rain in the near future irrigation will have to begin.

A very strange condition exists in the soil this year. As a rule, fall plowed ground works up very nicely in the spring, but this year it is almost impossible to work it down and put it into shape. The clods are hard and baked, very much as on heavy soil. This may be due to the fact that there has been practically no moisture during the winter.

The barley varieties were seeded during the week. The wheat on field K was put in and some general crops were planted. A fence was built along a portion of the north line, fencing one of the main ditches. This will give considerable pasture for sheep and calves. It is hoped that by this means it will be possible to keep the grass and weeds down along the banks by pasturing.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Shoshone.

During the week ending April 1, 17 farm visits were made, and 11 calls were received from farmers.

Final arrangements were completed with farmers for mixed grass pasture tests, the seed having been ordered. Eighteen farmers will sow a total of $48\frac{1}{2}$ acres of mixed grass pastures. The grasses include Bromus inermis, orchard grass, meadow fescue, Kentucky blue grass, white clover, and alsike clover. Some farmers will sow all the grasses in the mixture, and varying amounts of the different seeds will be sown per acre by the different men. The seed cost averaged about \$2.50 per acre. An article on mixed grass pastures was written during the week for the local papers, and it may be that others will yet decide to try pastures. Mr. Dan Hansen, Superintendent of the Huntley Experiment Farm, spent one day on the Project, during which time visits were made to 10 farmers, who had ordered seed, for the purpose of discussing with them the method of seeding and caring for pastures.

The final meeting of the Shoshone Live Stock Association was attended. Permits for 508 head have been issued to members of the

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

association for pasturing cattle during this year on the Forest Reserve Range. No provisions will be made this year for insurance for the reasons that the work is considered burdensome on the secretary, who serves without pay, and that no one cares to serve on the committee to eliminate from insurance cattle which were so much out of condition that they would not be a fair risk for insurance. A herder was employed who contracted to receive the cattle at the edge of the Project, furnish everything and return them to the edge of the Project, for 50 cents per month per head, he assuming no risk. The suggestion was made that the cattle which were to go to the Reserve range should be vaccinated for black leg. By the end of the week 13 cattle had been treated for four men, and several others had sent in applications for Government vaccine.

During the week ending April 8, 6 farm visits were made, and 15 men called at the office.

Interest in vaccination for black leg continues, 20 cattle being vaccinated during the week. Plans are being made for more work of this kind.

Mr. Hobson, the State Leader of Boys' and Girls' Clubs, spent two days on the Project, and plans were made for organizing a Gardening and Canning club and a pork and crop production club. The garden and canning club will be in charge of the Home Economics Club, the membership in which is open to any woman on the Project. The pork and crop production club will be in charge of Mr. Magruder.

W. C. Croft bought last fall 65 ewes at \$2.45 per head, amounting to \$159.25, and a ram for \$8.00. The only feed which they received during the winter, besides the alfalfa stubble, beet tops and straw which they consumed, was 3 tons of alfalfa hay, valued at \$6.50 per ton, or \$19.50, making the total cost for the sheep and feed, \$186.75. During the winter coyotes got into the herd and killed ten. Recently the remaining 55 head were sold at \$6.00 per head, making a total receipt of \$330.00. This left a profit of \$145.25.

Uncompahgre.

Mr. Lindgren spent the entire week ending April 8 in Utah,

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Uncompahgre (continued).

aiding in the selection of a car load of Holsteins. Visits were made to Provo, Richmond, and Lewiston, Utah. It was not possible to find sufficient stock at Provo to warrant purchasing. At the advice of Mr. Dorman, of the Dairy Division, the other points were visited and 22 animals were selected. Of the number, 4 are cows, which were purchased at \$85 to \$125 per head; 8 bred heifers, at \$50 to \$60; and 9 springers at \$70 to \$80. One pure bred cow was purchased at \$200. On account of a shortage of feed in these sections, the stock at Richmond was quite thin, but at Lewiston the animals were found in better flesh.

Boise.

The entire week ending March 25 has been given to work in connection with a proposed cow testing association for the Boise Valley. A meeting for final arrangements was called for March 29, when it is hoped the association will be finally organized.

Two days were spent in a visit to Twin Falls, where conferences were held with members of the Buhl Pioneer Cow Testing Association, the official tester of the association, the County Agent, and federal veterinarians there.

During the week ending April 1, sixteen cows in two herds were tested for butterfat.

On Wednesday, March 29, a meeting was held at Meridian, at which the Boise Valley Cooperative Cow Testing Association was formally organized. Only fourteen members were present. A Board of Directors and officers were elected and steps taken toward the employment of a tester. A total of 466 cows have been subscribed, the association including thirty herds.

One herd of hogs was inspected for cholera. Fourteen small bunches of calves, including 83 head were vaccinated for blackleg, the preparation and use of the Department vaccine being demonstrated.

On Tuesday of the week ending April 8, the directors of the Cow Testing Association met and elected a tester. It has not yet been learned whether or not he will accept at the price which the directors were able to offer him. Two more herds, including 47 head of cows, were secured for the association this week.

The greater part of three days of this week has been spent in the vaccination of cattle against blackleg. The disease has been quite severe this spring, and more wide-spread than usual. More

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effort has been made to induce cattle owners to vaccinate all stock under 2 years of age and vaccination has been quite generally done, although, in a great many instances not in time to prevent all loss. It has not been intended that much of this work should be done through this office, but demands are so frequent and insistent that considerable of it has had to be done.

The vaccine put out by the Department of Agriculture is generally regarded quite favorably and many people will use no other. Its preparation is considered by some rather troublesome and often it is not used with sufficient care unless some personal instructions can be given.

Truckee-Carson.

During the week ending April 8, 26 calls for assistance were received and 15 visits were made to farms. A circular letter was issued on the subject of milk fever. Several calls have been received for information and assistance along this line, showing that there was a general lack of information on the part of the dairyman concerning this very important trouble. In order that all might be properly informed, so that they may be able to detect this disease, which quickly becomes fatal unless properly treated, the circular letter on milk fever was issued at this season when the larger part of the cows are freshening.

A Calf-Way Milking Machine has just been installed on the farm of the Churchill County Creamery Company. This is the first Calf-Way machine to be installed here. There are now ten milking machines in use on this Project, representing four different makes. So far as known, all are giving satisfaction. The four makes of milking machines installed here are Hinman, Perfection, Sharpless, and Calf-Way. Several dairymen are contemplating installing milking machines, as soon as their practicability is further established.

Huntley.

During the week ending April 8, a total of 151 head of cattle were vaccinated against black-leg for Project farmers as follows: 13 for M. F. Mink; 6 for E. Brockmeyer; 13 for M. A. Jones; 7 for Mr. Olean; 5 for Geo. Graham; 88 for Pickens Bros.; 13 for B. B. Clark; 5 for Mr. Evans; 1 for Mr. Emmonds.

Fifteen farm visits were made and four farmers called at the office.

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WESTERN IRRIGATION AGRICULTURE.

Field Notes.

Huntley.

During the week ending April 15, the maximum temperature was 77; minimum temperature, 25; precipitation, .12 inch.

Field work during the week consisted of preparing land and seeding wheat and peas in the dry land rotation plats and preparing the land and seeding wheat in the nurse crop plats in the methods-of-planting-pasture-grass test in field L-II. This is the first field work of any consequence that has been done this spring.

Two days were spent with Mr. Christopher in visiting farmers on the Project who are planning to start pastures this season.

Belle Fourche.

During the week ending April 8, the maximum temperature was 63; minimum temperature, 17; precipitation, .01 inch.

No field work could be done during the week as the ground was too wet and frozen most of the time.

During the week ending April 15, the maximum temperature was 71; minimum temperature, 25; precipitation, .00.

The weather was favorable for all kinds of field work and during the week all the grain varieties and grain mixtures were seeded under irrigation, and barley and oats on the dry land. The wheat, oats, and barley were planted on the irrigated rotations, and the wheat and barley on the dry land rotations.

Five hundred arbor vitae and five hundred Black Hills spruce were received from the Forest Service and planted during the week.

San Antonio.

During the week ending April 15, the maximum temperature was 92; minimum temperature, 43; greatest daily range, 27; precipitation, 1.29 inches, recorded on April 15.

Early in the week corn on rotation plats were chopped and cultivated for the first time since planting. At this time plants vary from 6 to 15 inches high, the shortest being on the fallow plats in A4, and the tallest at the lower end of A6 and B6.

Orchard B3 was cultivated, and orchard E3 was disked during the week to reduce the weed growth.

At present, Sudan grass is the most vigorously growing crop on the Farm. Since the .53 inch rain of two weeks ago, a complete ger-

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued).

mination of seed planted earlier seems to have occurred, and in spite of the dry soil before and since, the young plants are rapidly covering the ground. It is very evident that Sudan grass seed germinates when surrounded by far less moisture than do milo or sumac sorghum, and that young plants are much more vigorous.

Truckee-Carson.

During the week ending April 15, the maximum temperature was 80; minimum temperature, 25.

Three thousand pounds of gypsum per acre was spread on plots B1, 2, 3 and 4.

Thirteen varieties of grasses were planted for a pasture experiment, April 13, on 5 acres of ground on the farm of F. E. Mobley. The varieties included were:

	Pounds		Pounds
Bromus inermis.....	15	Red Clover.....	10
Tall Meadow Oat Grass....	10	White Clover.....	10
Orchard Grass.....	10	Kentucky Blue Grass....	5
Perennial Rye Grass.....	12	Red Top.....	3
Italian Rye Grass.....	5	Timothy.....	12
Meadow Fescue.....	10	Sweet Clover.....	10
Crested Dogs Tail.....	5		

A pasture test with dairy cows will be made after the grasses are well established. A similar experiment will be put on the Churchill Creamery farm as soon as the ground is ready.

A hog tight fence is being put around plots E-6 and 7, in order that the growth of pigs on sweet clover and on alfalfa pasture can be compared.

Yuma.

CORRECTION.

On Page 166, Vol. IX, of the Weekly Bulletin, issue of April 8, a correction should be noted in line 3, of the first paragraph on that page. In the statement of the number of hogs used in the hog pasturing experiment strike out the figure 4 and insert 6.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Tuma (continued).

During the week ending April 8, the maximum temperature was 85; minimum temperature, 42; greatest daily range, 40. Fourteen acres were irrigated.

Considerable hoeing and cultivating was done through the week. Brush was hauled from the date orchard.

Barley, wheat and rye, growing on fields B-11 to 17, were plowed under as green manure crops.

Five variety blocks of rice were planted on C-38.

One hundred and twenty-seven plants of twelve different Eucalyptus species were planted on the grounds west of the corrals.

The alfalfa hog pasturing experiment was advanced another step when the hogs were turned onto the one-half acre of Canadian field peas for hogging down, the peas taking the place of the cracked milo, the supplementary grain being fed. The results of this pasture lot to date are as follows:

Dates		No. of days	Weights, Lbs.		G a i n s			Pounds milo fed	Net return per acre
Initial	Final		Initial	Final	Total	% Daily	Av. per day per hog, lbs.		
3/15	3/24	9	504.5	535.5	31	.664	.574	90	\$5.08
3/24	3/31	7	535.5	568.5	33	.858	.7856	75.2	6.23
3/31	4/5	5	568.5	596.0	27.5	.950	.9166	57.5	5.40
2/9	4/5	56	354.3	596.0	241.7	.933	.7193	510.7	\$47.25

During the week ending April 15, the maximum temperature was 93; minimum temperature, 41; greatest daily range, 50.

Twenty-six acres were irrigated, consisting principally of alfalfa and fallow lands.

Border C-27 was prepared and planted to Indian alfalfas in rows for alfalfa seed production. The seed of these strains of Indian alfalfas was produced on the station last season from original plantings in an alfalfa nursery of many varieties. These strains from India seemed especially well adapted to this climate; vigorous and very heavy producers. They seemed even more vigorous than Peruvian strains, including the originally described, hairy leaved, Peruvian. Seed will likely be secured this season for fall seedings in plot forms, that hay yields may be ascertained the following season.

A successive planting of teosinte and laguna corn was begun on C-19.

Roots of plants of the varieties of sorghums which failed to ma-

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma (continued).

ture during last season were transplanted to rows on A-24 and will be allowed to stand another season. It is thought the season to produce seed from these plants will be materially reduced by growing from old roots rather than from seed.

Alfalfa fields A-1 to 8 were clipped in preparation for seeding a Sudan grass mixture. The pasture lands, B-39 to 41, were disked and seeded to Sudan grass.

Hoeing and cultivating were continued and the following lands plowed: A-10-2, 15-3, 22, and B-1 to 5. Small grains as green manure crops have been plowed under on the B-series as follows:

6

Plat No.	Crop turned under	Tons green manure per acre	Date planted	No. of days maturing	Previous crop
B-1	Wheat	1.195	10-28-15	167	Fallow
B-2	Oats	2.550	10-28-15	167	do
B-3	Rye	2.145	10-28-15	167	do
B-4	Barley	2.807	10-28-15	167	do
B-5	Peas	-----	10-28-15	167	do
B-11&12	Rye	3.975	12-3-15	127	Alfalfa
B-13	Wheat	3.940	12-3-15	127	do
B-14	Wheat	4.410	12-3-15	127	do
B-15	Barley	4.590	12-3-15	127	do
B-16	Barley	3.650	12-3-15	127	do
B-17	Barley	4.670	12-3-15	127	do

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Cooperative Live Stock Shipping Associations.

The attention of the field men of this office is called to Farmers' Bulletin No. 718, which carries the title of this paragraph, published April 10, 1916. The bulletin gives a form of constitution for a shipping association and gives instances of the successful operation of the plan.

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Field Notes.

Truckee-Carson.

During the week ending April 15, 37 calls for assistance were received and 23 visits were made to farms. Much of the work during the past week has been devoted to helping the farmers in connection with various udder troubles. Some of this trouble has been due to excessive inflammation incident to calving. Much of the work, however, consisted in removing strictures in teats, which had resulted from cases of garget during the last lactation period. A few cases of hard milking teats were treated, and excellent results were obtained in all these cases. I find that the greatest difficulty in treating these cases is to get the farmers to properly care of the teats while they are being treated. I now insist that the treated cow be tied up by herself in a clean place until the treatment is over with.

The coming week will be devoted to assisting Dr. Lockett, of the University of Nevada, in vaccinating cattle in this locality against anthrax. Work on 700 head has already been asked for.

Tieton.

During the week ending April 1, milk was tested on 7 farms, and 2 visits were made relative to dairy records. Sixty-six cattle in 7 herds were vaccinated for blackleg. These animals were collected on 2 farms and one demonstration was given to the neighbors assembled in the preparation and use of the blackleg vaccinating outfit.

The schools on the Project are manifesting considerable interest in corn, pig and lamb clubs. Requests were received from three schools for assistance in organizing clubs. Assistance was given two boys in selecting their sows from a local herd. About 50 boys and girls have joined lamb clubs. Arrangements have been made to secure orphan lambs from one of these "outfits". In case it is impossible to secure the required number of orphan lambs the clubs may accept a proposition made by one of the local sheep owners to buy small lambs when they come off the range and to fatten them for the holiday market.

During the week ending April 8, 9 calls for assistance were received and answered by farm visits. One of these was to make a post mortem examination of a steer. The trouble was diagnosed as blackleg and the 36 animals on this and two adjacent farms were vaccinated. Twenty-three animals belonging to 4 farmers were assembled at one farm for vaccination, making 59 animals in all vaccinated during

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Field Notes.

Tieton (continued).

the week. Two demonstrations in the preparation and use of the vaccine were given in this connection.

Seed corn is being supplied to corn club members from that grown in cooperation with the Reclamation Service on their farm on the Project. This seed is also being furnished, in quantities sufficient to plant an acre, to 12 Project farmers.

Huntley.

During the week ending April 15, 63 head of cattle were vaccinated against blackleg for Project farmers.

One herd of 25 swine were sprayed with kerosene emulsion to kill lice.

Uncompahgre.

The first part of the week ending April 15 was spent in Utah in the interest of the importation of Holstein cows and heifers. Assistance was given in the arrangements for loading and testing of the animals imported. All of the animals selected passed the tuberculin test. They were loaded on Monday evening, and arrived on the Project Friday morning. They were unloaded and fed twice en route from Lewiston, Utah. On account of having but one car they were not given the quick service that they otherwise would have had. All of the animals arrived at Montrose in very good condition.

Mr. Nevius, of the State Dairy Commissioner's office, arrived to work with this office in an attempt to interest the farmers engaged in dairying to assist in the improvement of the quality of the dairy products on the farms. In this connection a western slope association for the dairymen is being furthered.

The hog prices on the Denver market have been down, but are on the increase again, the last report showing the tops at 9.30.

Butterfat is bringing the farmers 33¢ at present. The Montrose plant is manufacturing 1500 pounds of butter a week, most of which is sold locally.

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Field Notes.

North Platte.

During the week ending March 18, a visit was made to the farm of Mr. Harris, near Scottsbluff, who is feeding about 500 head of hogs. These hogs have access to corn, meat meal, alfalfa meal and stock feed, all fed in separate self feeders. Mr. Harris has been feeding hogs in this manner for over two months and is well pleased with results. It was his intention to provide ground barley in addition to the above but he was unable to get it. The above ration was one recommended by this office.

Saturday afternoon a cream testing demonstration was given at the Farmers' Union store in Mitchell.

On a trip recently made over the Project, 6 new colony hog houses were noticed. So far this spring the weather has been quite favorable for early spring pigs and the farmers are having a splendid success in saving them.

In February a questionnaire concerning the Iowa community hog house was sent out to 11 farmers in Iowa, who are using this style of house with more or less modifications. Replies were received from 10 of the parties written to. Most of the houses were 25' x 60', and cost from \$400 to \$1000. The inside pens are 6' x 8'. This seemed to be a satisfactory size. Six of the 11 houses had outside exercise pens connected with each inside pen. Seven farmers thought these outside exercise pens very important. In some cases the outside pens had concrete floors. The width of the alley between the pens is usually 8'. This gives room to drive through with wagon or manure spreader. During very cold weather some of the farmers allowed the pigs to have access to the alley-way for exercise. There is plenty of sunshine in the alley which makes it a splendid place for pigs.

The question was asked if there was a draft through the house when the doors leading out from the pens were all opened. Five reported that there was some draft, and four reported that they did not notice any draft. The remedy suggested was to use a canvas door, letting it hang down from the top.

For floors seven were using hollow clay blocks with one or two inches of concrete on top for the pens and solid concrete for the alley way. All stated that they were very well pleased with this kind of floor. Three farmers were using solid concrete floors. These also seemed satisfactory.

Seven farmers stated that artificial heat was necessary in the house; four said it was not necessary.

When the roof windows were made as planned in the Iowa house, all farmers stated that they admitted plenty of sunlight, except occasionally when covered with snow. One farmer reduced the size of his windows and does not get enough sunlight. Another placed

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Field Work.

North Platte (continued).

his windows in the wall, but now suggests that it would be better to place them in the roof and one small one in the wall.

Five men reported that dampness or frost did not collect on the walls or roof, and four reported that it did more or less. All stated that the house was very effective in saving pigs. One man stated that he did not lose over 12 pigs from 35 sows after the pigs were 2 days old. All were well satisfied with this style of hog house, and practically no changes were suggested.

During the week ending March 25, one case of suspected hog cholera was reported. Upon examination, the trouble proved to be other than cholera--probably due to eating some damaged rye.

On Friday, at 12.30 p.m., Mr. Jones left for Lincoln on a special-sheep and cattle train. The train was made up of 37 cars of sheep, and 10 cars of cattle. During the past few months, 2 such train loads of live stock have been shipped from the Valley each week, one train load being shipped on Monday, the other on Friday. This is practically the last shipment of lambs that will go from the Valley this spring; however, many of the fat cattle are still on hand.

After leaving the Valley no stops were made to pick up more live stock except at Alliance. An especially good run was made on this trip and the train arrived in Lincoln 3.30 p. m. Saturday, and all cattle and sheep were unloaded and fed. After being fed and rested the stock was reloaded and shipped on. Most of the cattle go to the Omaha market as do also many of the sheep; however, a considerable number of the sheep are shipped to Chicago, St. Louis, and St. Joseph. On this trip there was a slump in the Omaha market and most of the sheep went to Chicago. This market was also low so some of the shippers decided to have their sheep clipped and held over in hopes of getting a better market. The sheep will probably be held 3 or 4 weeks after being clipped before being placed on the market.

During the week ending April 15, three days were spent visiting schools on the Project with Mr. McMillian, State Agent in charge of the Boys' Pig Club, in the interest of the pig club work. Ten schools were visited for this purpose. The indications are that there will be a much larger enrollment than last year.

On Friday a visit was made to Minatare for the purpose of inspecting 2 bunches of shoats that were shipped into that locality ten days previous, from Torrington, Wyo. These shoats were shipped with a clean bill of health; however, when our visit was made positive cholera lesions were found in both herds, and over 50% of both bunches had died. It was learned that 3 of the shoats died en route

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte (continued).

to Minatare and that they had scours when bought, which makes it evident that they were sick with cholera when shipped. On account of the advance of the disease neither herd was vaccinated. Neighboring farmers have been notified of this outbreak of cholera, and advised to take prompt action in case they notice sick hogs in their herds.

The shipment of this car load of shoats into the Valley without being vaccinated was a direct violation of the quarantine covering this Valley.

Minidoka..

On Monday evening, of the week ending April 8, a cooperative cheese factory was organized at Paul. There is approximately \$2000 worth of stock subscribed.

Mr. Peter Jensen, of Rupert, has nine registered Duroc Jersey sows from which 69 pigs were farrowed. Of this number 57 were born without hair and died shortly after birth. The 12 born with hair are doing nicely. The hairless pigs were of good size, well formed, and perfectly developed. The pigs were examined with Mr. Jensen and two of his neighbors on Sunday. The sows were kept on an earth floor thickly bedded with straw and fed corn and alfalfa. Coal and salt had been given at infrequent intervals.

A flock of 8500 scabby sheep was dipped on the Project by Federal inspectors during the week.

The first case of hog cholera on the Project since November 16 occurred this week on the farm of Mr. Martin, where a bad case had been treated last June. The herd was vaccinated by Dr. Henderson.

The herds of the cooperative range association were taken to the open range north of the dam on Friday and Saturday. They will be herded on the open range until the grass in the allotted section of the National Forest is good.

Shoshone.

During the week ending April 15, 10 visits were made, 27 calls were received, and 12 communications were made by letter.

The two largest schools on the Project were visited regarding the organization of a pig and crop production club. The plans of the club were explained, and all those who thought they might be interested were given cards which they might send to the State Leader for literature.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

Inoculation for blackleg continues; 14 cattle were inoculated for four men.

A case of hog mange having been reported, the farmer was visited and a treatment suggested. Articles on the treatment of hog mange and the possibilities and difficulties in handling sheep were written for the local papers. There seems to be a growing sentiment for the raising of sheep on the Project.

A test is to be made on the Project this year in raising hard spring wheat. The Huntley Experiment Farm is furnishing for this test enough Pringle's Champion wheat to seed two acres of each of twenty farms. This wheat has been received, and most of it has been distributed. When the announcement was made through the papers last fall that this test would be made, there were about 65 men who offered to cooperate. The wheat is being distributed in the order of the applications.

The cooperators in the test of mixed grass pastures, with whom Mr. Hansen did not discuss the method of seeding the grass, were either visited or written concerning the suggestions made.

Boise.

During the week ending April 15, some work was done in connection with the recently organized cow testing association; several visits were made in the interests of the grazing association, organized for the purpose of attempting to secure more range for Project settlers; vaccination of several herds of calves and the inspection of two herds of hogs for cholera.

All arrangements have been completed for the beginning of operations in the cow testing association. Mr. H. H. Beier, a four-year dairy-course graduate from the State University, has been secured as tester. He will begin work the first of the following week.

Hog cholera was found this week on the farm of E. Marsters, near Meridian. Mr. Marsters practices simultaneous treatment and states that he has spent all of the profit from his hogs in vaccination. He has also lost heavily one or two different times. Another case of suspected cholera which was examined proved to be trouble resulting from feeding hogs in a sandy pen. In one hog which was examined, the large intestine contained large amounts of pure sand and one large pebble. No further trouble from this herd has been reported.

An interesting case was found in a dairy herd near Nampa during the week. A cow which had been given tuberculin gave a nearly typical reaction for tuberculosis and was killed. No evidence of

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Boise (continued).

tuberculosis was found, but an extremely large abscess was found inside of the chest cavity extending through the breast bone. This abscess in addition to a large amount of very corrupt puss contained a short piece of wire. The abscess had apparently been the sole cause of the trouble, although it was not understood why an apparent reaction for tuberculosis should have occurred. The owner of the cow was satisfied that she could not live and wished her killed.

A meeting of the Farmers' Club at Five Mile was attended during the week, and the work of the grazing association was discussed.

On Monday, of the week ending April 22, the Boise Valley Cow Testing Association began actual operations. The association includes 36 members, a number of these being partners, and has enrolled 519 cows. In addition to these, other cows which are not in milk at the present time will be enrolled as they come in. The members seem quite enthusiastic over the association and the year's work should be a profitable one.

Part of Monday was spent in taking Mr. Beier, the Association tester, to the farms of a number of members of the Association, and then to the farm where testing was to be done.

Two new cases of hog cholera have occurred on the Project during the week, one of them being quite virulent and the other of a milder type. Both of the herds in which these outbreaks occurred have been given the serum treatment. Two or three bunches of calves have been vaccinated against blackleg during the week.

A meeting of the Farmers' Home Club was attended at Meridian. Members of this club have organized a small private cow testing association, each member to take samples of his milk at least one day a month, the testing to be done by a member of the organization. About 150 cows are enrolled for which the owners will pay 5¢ per month.

Cow testing and the hog cholera situation were briefly discussed at the above meeting.

FRANKS.

It has recently been called to attention that possibly there is some misuse of the franking privilege by members of the field staff; and in order that a thorough understanding of this matter may be had, paragraph 104, of the Administrative Regulations, as amended January 5, 1915, is quoted below:

"104. USE OF PENALTY ENVELOPES. Official mail matter in penalty envelopes must bear the words "Official Business" to entitle it to free transportation in the mails. The use of penal-

Franks (continued).

ty envelopes to avoid the payment of postage on other than strictly official business is absolutely prohibited.

When an officer of the department writes to a private party on official business for information of value to the department he may inclose with his letter an official envelope properly addressed to himself to cover the reply.

Penalty envelopes or penalty labels must not be furnished merchants or others from whom some articles are purchased for the delivery of such articles by transmission through the mails. Penalty envelopes furnished by the department to persons not in the employ thereof, or who are not officers thereof, or who are not officers of the Government, must not be used by them for the transmission in the mails, free of postage, of any matter other than official information (correspondence) and indorsements relating thereto. But penalty envelopes addressed to the department may be furnished to publishers to be used by them in transmitting copies of their publications for which no charge is made, when such publications contain official information necessary to the department. Penalty envelopes bearing a return address may also be supplied to persons in possession of public documents for use by them in returning such documents to the department."

Under date of August 20, 1909, the Chief of the Bureau made the following exposition of the franking privilege:

"I wish again to call attention to the use, or rather misuse, of the Government frank. New men coming into the Bureau should be especially informed as to what constitutes frankable and unfrankable matter. Franks can only be used for regular official mail or matter emanating from the Department direct or sent in under specific instructions from the Department.

It would not be proper, for example, to forward franks to railroads, steamboat companies, or others, requesting them to send their literature under frank for the use of the Department. This is a general use of the frank which is not permissible. It would not be proper, furthermore, to forward franks to seed houses requesting them to send their seed catalogues under frank. If Mr. A, a farmer in Georgia, writes in that he has seen an interesting article in a magazine or newspaper relating in general to the work of an office or the Department, it would not be proper to send him a frank to have this newspaper or magazine forwarded to the Department. If, however, Mr. A of Georgia should write to the Department stating that he had observed some interesting facts regarding the growth of cotton in his neighborhood and would be pleased to furnish these facts to the Department, it would be proper to forward a frank for sending the same. It would also be proper to forward a frank for the

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Franks (continued).

sending to the Department of specimens of plants, seed, or anything of this nature for examination and report, providing the same weighs less than four pounds.

In other words, it is safest to follow the plan that the frank is only to be used where some specific material or information that would be useful to the Department is involved. A seed catalogue, newspaper, or the folders and other pamphlets of real estate and other agencies would hardly come within that category.

In all cases where franks are sent out from the Department they should be sent in such a way that they will come back addressed to the head of the office rather than to individuals within that office in order to avoid all complications."

Perhaps the most common abuse of the frank is in sending penalty envelopes to dealers for the transmission of their vouchers. This is clearly an abuse of the privilege and should be avoided.

WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Truckee-Carson.

During the week ending April 22, the maximum temperature was 74; minimum temperature, 30.

Barley and sweet clover were seeded April 18 on plats D6 and 7. Sweet clover alone was seeded on plats G1, 3, 4, 5 and H9 and 10.

Grass, clover and alfalfa varieties were seeded on plat H2 in duplicate in plats containing approximately 1 square rod. The varieties planted to date are:

Smooth brome grass	Tall fescue
Slender wheat grass	Red fescue
Kentucky blue grass	Sheep fescue
Red clover	Perennial rye grass
Mammoth red clover	Italian rye grass
Alsike clover	Orchard grass
White clover	Timothy
Tall oat grass	Sweet clover
Fine leaf fescue	Grass mixture for loam soils
Hard fescue	Grass mixture for sand soils
Meadow fescue	Grass mixture for alkali soils
Grazing mixture	

The pig fence around E6 and 7 was completed and 18 pigs turned into plat 7 on Saturday, April 22. The pigs included in the experiment were as follows:

Three Durocs secured from the Churchill Creamery Farm, age about 10 weeks; average weight, 25 pounds.

Two Berkshire pigs; age 9 weeks; average weight, 26 pounds; raised on the Experiment Farm.

Three Berkshire-Duroc crosses; age, 8 weeks; average weight, 28 pounds; raised on the Experiment Farm.

Ten grades; age, probably 3 months; average weight, 38.7 pounds; raised by A. Baumann.

Ten pigs were placed in the alfalfa pasture on H-17. The pigs included were:

Three Durocs from the Churchill Creamery Farm; age, about 10 weeks; average weight, 25 pounds.

Three Berkshires; age, 9 weeks, average weight, 27 pounds; raised on the Experiment Farm.

Four Berkshire Duroc crosses; age, 8 weeks; average weight, 27 pounds; raised on the Experiment Farm. All pigs will be given a 2 per cent ration of barley in addition to the pasture.

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Field Notes.

Truckee-Carson (continued).

The work of leveling new land south of field B was continued throughout the week.

Belle Fourche.

During the week ending April 29, the maximum temperature was 73; minimum temperature, 27; precipitation, .15 inch.

The following varieties of apples, plums, and cherries were set out:

Apples:

30-Wealthy: 30-Longfield: 30-Hibernal: 20-Patten's greening
on Yankton:

Crabs:

20-Virginia: 10-Transcendent: 10-Minnesota.

Plums:

9-Hanson hybrid: 3-Sapa: 3 Opata: 3-Hanska 3 Wolf: 3 Desota:
3-Wyant.

Cherries:

3-Montmorency: 6-Early Richmond.

The following shrubs were set out around the grounds and at Newell Park.

24-Lilac, 24-Spirea van houte, 24-Golden elder, 24-H. B. Cranberry, 24-Siberian dogwood, 24-Caragana, 24-Spirea opulifolia, 24-Snowball, 24-Rosa rugosa, 24-common elder, 24-Hydrangea.

This completes the planting around the buildings and at Newell Park.

The following varieties of small fruits were set out:

Currants:- 12-Red dutch: 12-Perfection: 12-L. B. Holland, 12-White grape.

Gooseberries:- 12-Houghton: 12-Transparent: 12-Industry.

Raspherries:- 50-Gregg: 50-Nemaha: 50-King: 50-Loudon: 50-St. Regis.

All roads on the dry land were gone over with the road drag.

The following grass mixtures were planted during the week on what was formerly the old orchard, but now designated as field R:

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Belle Fourche (continued).

	<u>Lbs. per acre.</u>
<u>Mixture No. 1.-</u>	
Kentucky blue grass.....	3
Brome grass.....	4
Meadow fescue.....	6
Orchard grass.....	5
Tall oat grass.....	6
White clover.....	<u>2</u>
	26
<u>Mixture No. 2.-</u>	
Kentucky blue grass.....	5
Meadow fescue.....	10
White clover.....	<u>2</u>
	17
<u>Mixture No. 3.-</u>	
Brome grass.....	6
Tall oat grass.....	10
White clover.....	<u>2</u>
	18
<u>Mixture No. 4.-</u>	
Sweet clover.....	6
Brome grass.....	6
Tall oat grass.....	<u>6</u>
	18

A nurse crop of barley, 6 pecks, was planted with all the mixtures, but this nurse crop will be kept down by frequent mowings during the summer.

Nine 1/20-acre plats were planted, for frequency of irrigation, to the following: Kentucky blue grass, 6 lbs.; Meadow fescue, 6 lbs.; Tall oat grass, 6 lbs.; Brome grass, 4 lbs.; Orchard grass, 6 lbs.; White clover, 2 lbs., per acre.

The plan is to irrigate one set of 3 plats once a week; one set of 3 plats once in two weeks, and one set of 3 plats once in three weeks.

Under date of May 1, Mr. Aune writes:

We have had a very favorable spring for work, and the ground is in the very best of condition for all crops. All the grains are seeded and all ground for the other crops has been prepared for planting as soon as it is time for each crop to go in. We are planting beets today, and hope to get all the potatoes planted this week.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio.

During the week ending April 22, the maximum temperature was 94; minimum temperature, 51; greatest daily range, 43.

The principal field work done was that of harrowing the land and planting cotton. Cotton on the rotation plats was planted and cotton in various experiments conducted by the Office of Crop Acclimatization was also planted.

The extremely poor stand of milo obtained from the first planting on the rotation plats made necessary the replanting of this crop on all plats.

Following the rain of last week, much improvement in the general appearance of the orchard and other trees and field crops on the farm has taken place.

Scottsbluff.

The dry weather continued during the week ending April 22. Very high winds have prevailed. This, together with the drought is beginning to tell on the crops that have been planted and are out of the ground. Although the farmers wish to put in their spring crops, they are beginning to clamor for water, and it is believed that a great deal of this seeding will not come up without rain or irrigation previous to seeding. We have had three days of exceedingly high winds. This has caused much drifting of seed. In the hedge between the drive and the irrigated land, the east side of field E, the sand has drifted into the hedge from a foot to 18 inches deep. Some barley that has been seed in field I "blowed" so badly that there are many places where the seed is exposed in the drill furrow.

During the week seeding of oats in field K was finished. The barley and oat varieties and some miscellaneous crops were also planted. During the windy weather very little field work could be done on account of the sand blowing.

It was reported last Monday, April 17, that a large number of cows had bloated, especially in Pleasant Valley. These cows have been pasturing on alfalfa all spring and at this time the alfalfa is becoming rather short on account of the continued drought. Yet on this day the animals bloated, whereas since then there has been no trouble. One farmer had 17 head to bloat; two of these died. All other farmers that had stock on alfalfa worked enough to bring their cows through without any loss. In looking up the climatic conditions on that date, it was found that in the forenoon until about 10 o'clock there was a very dense fog, accompanied, of course,

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff (continued).

by some dew or mist. This, however, was not much greater than some of the morning dews, but was probably the cause of the bloat at this time.

Mr. Knorr reported as follows for the week ending April 29:

"During the week series 1 and 2 of field H were plowed preparatory to planting corn and potatoes. The oat varieties were seeded on series 2, field I, and the mangels seeded on field F. It is doubtful if the mangels will come up until there is some rain or moisture of some kind. As the soil is extremely dry it is time for us to have in all of the beets and flax, but there is no need of planting these until we have rain or irrigated the soil before planting. We have had but very little moisture this year, having had only 1.12 inches since January 1; .53 inch of this came during April in several intermittent showers. The pastures have made practically no growth and the alfalfa is standing still.

From two to three men were busy the greater part of the week working with the hogs on fencing, making houses and weighing up the pigs that are being put on field D.

We have also fenced off a strip about 20 feet wide and half-way across the north end of the farm, fencing in the dike and lateral at that place with the intention of running the sheep and lambs on that piece of land. At first we thought that the sheep would not be able to keep down this pasture, but on account of this extremely dry weather we are now forced to feed the sheep hay.

The high winds that we have been having for the past few weeks have been causing considerable damage. Twice we had to cut out the little evergreens that are growing in the windbreak west of the barn. The wheat and the barley that are out of the ground have been badly cut by the sand.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Huntley.

During the week ending April 22, twenty-five milk samples were tested in the office, and twelve farm visits were made.

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

Ninety-eight head of cattle were vaccinated for project farmers during the week.

Uncompahgre.

During the week ending April 22, 11 farm visits were made, thirty-one samples of milk and cream tested for butter fat, two meetings held, and one new hog feeding demonstration started. Arrangements were made with two farmers to conduct monthly tests for butter fat production.

Nearly the entire week was spent with Mr. Nevius, of the State Dairy Commissioners Office, who was on the Project with the idea of encouraging a better quality of dairy products. In this interest one meeting was called, at which there were 8 farmers present. It was found that the interest was strong in the improvement of the dairy conditions.

The sixth weighing of the hogs on the Fetz farm was carried on. It was found that the pigs have been putting on very economical gains. One hundred pounds of gain was obtained from 350 pounds of grain being fed with alfalfa hay and cooked potatoes.

The third weighing of the hogs on the Lewis farm showed a very satisfactory gain on ground wheat.

On account of the drop in butter, butter fat has dropped from 33 to 29¢.

During the week ending April 29, fifteen farms were visited. Seven samples of milk were tested for butterfat before the pupils of the Maple Grove School, hogs were weighed on three farms, and three requests for service were received.

Aid was given in the selection of a pure bred Holstein bull for a club of three farmers.

The greater part of the week was taken up with farm visits and the weighing of hogs on the various farms. Two new hog feeding tests were started. One of these tests is with 24 hogs on alfalfa pasture and a 2 per cent ration of corn.

Mr. Farrell arrived on the Project on Wednesday and spent the rest of the week here.

On Saturday a trip was made to the North Fork country to look at a Holstein bull at the request of the Delta Holstein club. This trip was made in company with Mr. Farrell and the Project manager, Mr. Pyle, also a member of the Delta Club.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone.

During the week ending April 22, 9 farm visits were made, 19 calls were received, and 22 communications were made by letter.

Twenty-four cows were tested for four men and seven cattle were inoculated for black leg for two men.

M. Farlow reported that he bought 261 ewes last fall for \$1044.00, and that he paid \$50.00 for hired labor, and \$100.00 for alfalfa hay, or a total cash expense of \$1194.00. He lost 8 and sold the remaining 253 for \$2000.00, leaving \$806 to pay for his own labor in herding them, and for the sweet clover on his farm. There was a very poor stand of sweet clover, and it was worth nothing except for pasture.

Minidoka.

During the week ending April 15, a visit was made to a number of sheep farms with two South Side farmers who desired to purchase a farm flock, and it was found that there are very few sheep for sale. Where found, the price asked was from \$10.50 to \$12.50 per head for the unshorn ewes with the lambs. This stock is mostly mixed, but little of it being of straight breeding.

Plans are being formulated to build the cheese factory at Paul, and put the same in operation as soon as possible.

Work with the potato growers to raise good seed free from disease was started by Mr. E. P. Taylor, Field Horticulturist of the University of Idaho, this week. Mr. Taylor was assisted in getting in touch with the best growers and has arranged for a number of demonstration fields that will be visited from time to time. Assistance and demonstrations will be given in selecting the seed, treating for disease, roguing and hill selection. On the South Side the interest in this work is much greater than on the North Side, where the acreage will decrease this year, as there is a tendency to grow beets rather than potatoes. This is mostly for the reason that it has been difficult to control scab in the sub-irrigated land, and the marketing problem has been difficult.

At Rupert, the attendance at the first demonstration was three; at Burley, fifty-nine.

PROPOSED LIVE STOCK INVESTIGATIONS.

The Agricultural Appropriation Bill, which passed the House

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Proposed Live Stock Investigations (continued).

May 2, carried an item for "Experiments in dairying and live stock production in semi-arid and irrigated districts of the western United States;...**** \$40,000." This paragraph does not include the requested authority for the purchase of live stock or the erection of buildings, and the amount appropriated has been reduced from the \$87,500, which was included in the estimates.

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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

The weather during the week ending Apr. 29 was cool and pleasant. The maximum temperature was 68; minimum temperature, 49; and greatest daily range, 32. Two showers occurred, the total precipitation amounting to .30 inch.

Practically all available labor was utilized during the entire week in the final preparation of land, and in the completion of spring planting. Cotton in the various root rot control experiments on AB8, A1 and C5, was planted after the various plats had been given the treatments as planned. Acid phosphate was applied with the grain drill and a very satisfactory job was done. Acid calcium sulfate, on account of its stickiness and spongy condition, was first broken into small pieces and then distributed by hand as evenly as possible. Sudan grass was planted on D3 to be used in the steer pasturing experiments. Chinese and Pima corn were planted on F3 and Navajo corn was planted on A3. A small planting of Rhodes grass was made on F3. Seeds of the dwarf milo and Sudan grass hybrids were planted on C3. Mr. Davidson practically completed the planting of all miscellaneous cotton experiments under his supervision.

Cultivation of the orchards was completed and some weeding was done on the rotation plats.

Huntley.

During the week ending April 29, the maximum temperature was 87; minimum temperature, 24; precipitation, .14 inch.

Weather conditions were favorable for doing field work during the entire week. The seeding of grass mixtures in field L-III, and of clover varieties in fields L-I and L-II was completed. Oats, alfalfa, flax and sugar beets were seeded in the rotations under irrigation. Six quarter-acre plats of sugar beets were planted in field L-II, to be used in an experiment to control the sugar beet root louse.

The pasture grass experiment started in field L-III includes the testing of 3 separate grass mixtures, each of which is seeded by four different methods, as follows: Mixture with nurse crop of wheat to be cut for hay; Mixture with wheat as a nurse crop to be harvested for grain; Mixture seeded without nurse crop; Mixture late summer seeded in stubble after grain is removed. The mixtures in this test and the rate of seeding of each grass in the mixture are shown in the following table:

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Field Notes.

Huntley (continued).

G R A S S .	Mixture No. 1: Rate of seeding, lbs.	Mixture No. 2: Rate of seeding, lbs.	Mixture No. 3 Rate of seeding, lbs.
Smooth brome grass.....	2	2	-
Orchard grass.....	5	5	5
Tall fescue.....	3	3	3
Perennial rye grass.....	3	3	4
Kentucky blue grass.....	4	4	-
White clover.....	2	-	2
Alsike clover.....	2	-	2
Total.....	21	17	16

The plats in this experiment are one-quarter acre in size and the test is conducted in duplicate so that there are 24 plats in all. Seeding was done with a Superior double disc, set to run as shallow as possible. All of the grass seed was seeded in a mixture through the grain hopper and the clovers were run through the alfalfa attachment. Seed bed preparation consisted of double disking, harrowing, leveling and rolling immediately before planting. All of the land was fall plowed. Grass mixture No. 1, described above, was planted without a nurse crop on plats A-II-3, 5, 7 and 8.

Clover.- Methods of Planting.

A test in methods of planting clovers was started in fields L-I and L-II, using 12 one-quarter acre plats in each series. The test includes planting with wheat as a nurse crop to be cut for hay; planting with wheat as a nurse crop to be harvested for grain; planting clover without a nurse crop; and late summer planting in wheat stubble after the grain crop is removed. Red clover, white clover, and alsike clover are included in the test and each clover is duplicated in each method of planting. The seeding rate of wheat on the nurse crop plats was one bushel per acre, and of clover, 10 pounds per acre. The seed was planted with a double disc drill and seed bed preparation was the same as for the grass seeding experiment. It is the intention to use these clovers in following seasons for seed production tests.

In field L-IV, five new rotations together with a continuously cropped plat of each crop used in these rotations were started as follows:

Rotation 34.- 3-year rotation.

Potatoes, Beets, Oats.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

Rotation 35.- 3 year rotation.

Potatoes, Beets, Oats (manure).

Rotation 46.- 4 year rotation.

Alfalfa (seeded in oat stubble in fall), Alfalfa,
Beets, Oats.

Rotation 63.- 6 year rotation.

Alfalfa (seeded in oat stubble in fall), Alfalfa,
Alfalfa (hogged), Corn (hogged), Corn (hogged),
Oats.

Rotation 64.- 6 year rotation.

Alfalfa (seeded in oat stubble in fall), Alfalfa,
Alfalfa, Potatoes, Beets, Oats.

Director F. B. Linfield and Prof. C. N. Arnett, of the Montana State College, and Mr. J. S. Cole, of the Office of Dry Land Agriculture, were visitors at the Station during the fore part of the week.

Condition of Pasture Grasses in field B-V, in
spring of 1916.

In a test in the Methods of Establishing pasture grasses, started in the spring of 1915, in field B-V, six grasses and one clover were planted, both separately and in mixtures, with a nurse crop of wheat cut for hay; with a nurse crop of wheat harvested for grain; and without a nurse crop. A mixture of all of these grasses and clover was also planted on August 25, on a one-quarter acre plat in this field.

The grasses used in the tests and the rate of seeding of each, both separately and in the mixtures, were as follows:

G R A S S .	: Rate of : seeding alone. : Lbs.	: Rate of seed- : ing in mixture. : Lbs.
Smooth brome grass.....	14	6
Orchard grass.....	30	5
Meadow fescue.....	14	4
Kentucky blue grass.....	16	5
Perennial rye grass.....	14	6
Tall fescue.....	14	4
White clover.....	6	2
Total in mixture.....		32

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

All of the individual variety plats, except Perennial rye grass, are in excellent condition this spring. Perennial rye grass appears to be the only one affected by winterkilling, and the loss in stand from this cause is about 25 per cent. This grass was also slow in starting spring growth, and apparently makes the best showing during the first season. The stand of Kentucky blue grass secured on the plats without a nurse crop was very poor, and on the nurse crop plats was a complete failure.

The dates on which the different grasses commenced growth were as follows:

G R A S S .	Date started growth. Spring, 1915.
Brome grass.....	April 1
Orchard grass.....	5
Meadow fescue.....	10
Kentucky blue grass.....	1
Perennial rye grass.....	25
Tall fescue.....	5
White clover.....	5

All of the grasses, excepting meadow fescue and perennial rye grass, has made sufficient growth to be ready for pasturing by May 1. The growth of the brome grass was much better than any of the other grasses.

The grasses planted without a nurse crop appear to have but a slight advantage in the amount of growth at this time. The grasses in the nurse crop plats make a much better appearance than they did in the fall of 1915, and the stand is fairly good, although of course not as perfect as on the plats where no nurse crops were grown. While the stand of grasses on the plats on which the nurse crop was left for hay is somewhat better than on the plats where the nurse crop was harvested for grain, the difference is not nearly so noticeable as it was in the fall of 1915, and both of the plats should furnish good pasturage this season.

On the quarter acre plat that was planted to a grass mixture on August 25, 1915, a perfect stand was secured. The grasses are in excellent condition this spring, having apparently suffered no winter injury. The growth at this date is nearly equal to that on an adjacent plat that was seeded in April, 1915, to a mixture of grasses with a nurse crop cut for hay. These two plats will be used

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

for a sheep pasturing test in 1916, and are now being fenced for that purpose.

The other two quarter-acre plats seeded in April, 1915, one to a mixture without a nurse crop, and one with a nurse crop cut for grain, will be used as a pasture for one cow during 1916, and will be ready to begin pasturing within a few days.

The weather during April was rather cool with but little rainfall, with the result that irrigation was necessary earlier than usual and the plats to be used for pasturing tests are just now being irrigated.

On the three quarter-acre plats in field A-II, that were used in a pasturing test with two cows in 1915, the grasses appear to be slower in starting growth than were the grasses in field B-V, and have not yet made sufficient growth to furnish good pasture. These plats were irrigated on May 1, and as soon as the soil is dry enough, which will probably be about May 7, these plats should be ready to begin pasturing. It is intended to use these three plats again during 1916 as a pasture for two cows. In 1915 the cows were started in these plats on April 28.

Separate grasses and grass mixtures planted in field C-II, May 2, 1916, in duplicate plats, 6 x 10 feet in area, were as follows:

Separate Grasses.

Brome grass	Orchard grass
Tall fescue	Perennial rye grass
Kentucky blue grass	White clover
Alsike clover	

Grass Mixtures.

1.	2.
Brome grass	Orchard grass
Orchard grass	Tall fescue
3.	4.
Tall fescue	Kentucky blue grass
Perennial rye grass	White clover
Brome grass	Alsike clover
5.	6.
Orchard grass	Orchard grass
Tall fescue	Alsike clover
White clover	7.
Alsike clover	Complete mixture of all grasses and clovers.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Huntley.

During the week ending April 30, ten farm visits were made. Twenty-eight milk samples were tested in the office.

A case of suspected hog cholera was investigated for George Graham. A post-mortem examination of a hog that had died on his place did not reveal any characteristic symptoms. The condition of the lungs and the presence of numerous tubercles on the liver and lining membrane of the chest and abdominal cavity indicated that the hog had died of tuberculosis.

Truckee-Carson.

During the week ending April 29, thirty calls for assistance were received and visits made in response to these calls.

Most of the time was spent in cooperating with the University of Nevada in vaccinating cattle against anthrax. About 1800 head were vaccinated. There has been more demand for anthrax vaccination this year than usual.

Because of the demand for alfalfa for shipping, all surplus hay has been shipped out of the Project and many ranchers sold all their hay except what was absolutely needed. This necessitated the use of the lowland pastures of the valley for young dairy stock and dry cows. These lowland pastures are quite generally infected with anthrax, and vaccination against anthrax must be resorted to, in order to keep down the loss. The work will continue for at least two weeks yet, and it is expected that 2500 head will be vaccinated.

The first report of hog cholera on the Project was received on Saturday, April 22, and the hogs were vaccinated on Sunday, April 23, by a representative from the University of Nevada. Upon further investigation it was found that there had been at least two previous outbreaks of cholera in the same neighborhood. Upon investigating these outbreaks the source of infection was thought to have come from feeding town slops containing pork scraps. All hogs in the neighborhood of the present outbreak have been quarantined and no loss has been reported since vaccination of the one herd.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone.

During the week ending April 29, 11 farm visits were made, and 21 calls were received.

The seed for the mixed grass pastures has been received, and most of the farmers are preparing the land for seeding. Some of the farmers are planning to corrugate and irrigate the land as for beets before seeding the grass.

Seven cattle were inoculated for black leg for one man and twelve samples of milk were tested for three men.

A movement for the Project Fair for this year is being started.

A great many of the cattle have been sent to the range. One herder who takes cattle for 50 cents per month and herds them in the hills north of the Project, has about 700 head under his charge. The herder who is to have charge of the cattle for the Shoshone Livestock Association on the Forest Reserve Range is holding them now on the range near the western edge of the Project, and the farmers are delivering their cattle to him there.

Sentiment is growing for the dairymen who have valuable bulls to refuse outside service, for fear of getting contagious abortion in their herds. This sentiment is being encouraged even though it interferes with cooperation in the use of the bulls.

Some farmers are starting to pasture cattle on alfalfa and sweet clover. One man has reported a cow lost from bloat on sweet clover.

The following is a report on the dairy herd of G. W. Atkins, for the year March 1, 1915, to March 1, 1916, inclusive. At different times during the year the cows were fed alfalfa hay, corn silage, or grain stubble and alfalfa stubble pasture. The price charged for hay was \$5.75 per ton; for silage, \$3.34 per ton; and for pasture, \$1.00 per head per month.

The value of the skim milk and the fertilizer and calves were allowed to balance the care, interest and depreciation.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Shoshone (continued).

	C O W N U M B E R S .					
	1	2	3	4	5	6
Breed.....	Gr. Guer.	Mixed	Gr. Guer.	Gr. Guer.	Mixed	Gr. Guer.
Age.....	2 yrs.	3 yrs.	3 yrs.	2 yrs.	5 yrs.	2 yrs.
Pounds milk.....	3032	3498	5587	2394	6493	4327
Average test.....	4.53	4.10	4.25	4.26	3.54	4.29
Pounds fat.....	178.3	143.4	238.8	101.9	230.0	185.6
Average price butter fat.....	\$.26	\$.254	\$.259	\$.257	\$.259	\$.26
Value of butterfat....	\$46.35	\$36.42	\$61.94	\$26.26	\$59.60	\$48.27
Feed consumed.						
Alfalfa, tons.....	3.48	2.4	3.5	1.6	3.5	2.7
Cost of alfalfa.....	\$21.00	\$13.80	\$21.85	\$3.48	\$20.12	\$15.42
Silage, tons.....	2.33	1.75	2.5	2.00	2.25	2.5
Cost of silage.....	\$7.68	\$5.83	\$8.35	\$6.88	\$7.51	\$8.35
Days of pasture.....	60	120	30	150	90	90
Cost of pasture.....	\$2.00	\$4.00	\$1.00	\$5.00	\$3.00	\$3.00
Total cost of feed....	\$30.68	\$23.60	\$31.20	\$21.16	\$30.65	\$26.72
Returns above cost of feed.....	\$15.67	\$12.82	\$30.74	\$5.04	\$28.95	\$21.55

	C O W N U M B E R S .					
	7	8	9	10	11	12
Breed.....	Mixed	Gr. Guer.	Mixed	Gr. Guer.	Gr. Guer.	Mixed
Age.....	5 yrs.	3 yrs.	5 yrs.	2 yrs.	2 yrs.	5 yrs.
Pounds milk.....	4336	4127	6932	4746	5226	6057
Average test.....	4.0	4.32	3.94	4.33	4.16	3.96
Pounds fat.....	173.6	178.9	272.9	205.9	217.4	233.5
Average price butter fat.....	\$.266	\$.266	\$.267	\$.266	\$.266	\$.267
Value of butterfat....	\$46.25	\$47.58	\$72.86	\$54.76	\$57.93	\$63.70
Feed consumed.						
Alfalfa tons.....	2.15	2.7	3.5	3.5	3.5	3.5
Cost of alfalfa.....	\$12.36	\$15.42	\$20.02	\$20.02	\$20.02	\$21.85
Silage, tons.....	2.0	2.25	2.5	2.5	2.5	2.4
Cost of silage.....	\$6.68	\$7.51	\$8.45	\$8.45	\$8.45	\$8.00
Days of pasture.....	90	120	45	45	45	45
Cost of pasture.....	\$3.00	\$4.00	\$1.50	\$1.50	\$1.50	\$1.50
Total cost of feed....	\$22.04	\$26.93	\$29.97	\$29.97	\$29.97	\$31.84
Returns above cost of feed.....	\$24.21	\$20.65	\$42.89	\$24.79	\$27.96	\$32.36

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Tieton.

During the week ending April 15, 19 farms were visited and 7 farmers were conferred with at the office. Nine calls for assistance were received, one farm survey was made, a talk was given to the Tieton View school children in regard to club work, and an evening meeting at the Willow Lawn School was attended upon invitation. In addition to the regular program at this meeting some time was spent in discussing different points of club work, especially in connection with cooperation between the parents and the school.

Fifty-three animals were vaccinated for black leg on 7 farms, 2 demonstrations were given in the preparation and administration of the blackleg vaccinating outfit.

Prices of farm products have remained practically as they were in the last report. Fewer hogs are being marketed at this time than two or three weeks ago. The creameries report a slight falling off in the amount of butter fat produced by the average herd, as compared to this time last year. This is undoubtedly due to the high price and scarcity of alfalfa hay this spring, and also to the fact that a large number of cows have been put into spring range pasture that was not sufficiently developed to furnish a full ration. Three deaths of young stock on such range have been investigated and found to have been caused by poisonous plants. Upon investigation it was learned that a number of cattle are thus poisoned nearly every season on the early range pastures.

Messrs. Arnez and Gerber have begun erecting a building for a combined creamery and cheese factory at Cowichee, a central point on the upper part of the Project. They plan to gather milk for cheese making within a four-mile radius, and to gather cream from farmers without that district who wish to sell to them. The cream, as well as the milk, will be collected daily during the hot weather by means of two Ford trucks. All possible emphasis is being presented to this new company upon the necessity of buying either two grades of milk and cream or only the highest. It seems probable that the cheese at least can be disposed of on the home market if it is a first class article. There is a good opening for a quality butter trade in this city also.

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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Huntley.

During the week ending May 6, the maximum temperature was 90; minimum temperature, 33; precipitation, .04 inch.

Weather conditions were favorable for field work during the week, and the planting of all crops, except corn and potatoes, was completed. Beets were seeded in the distance-of-planting and thinning experiments in field B-VI, and in the root louse control experiment in field C-IV.

The following grass mixture was planted in six 1/20-acre plats in field C-III, to be used in a frequency of irrigation test:

	Rate of seeding per acre (pounds).
Smooth brome grass.....	2
Orchard grass.....	5
Perennial rye grass.....	3
Tall fescue.....	3
Kentucky blue grass.....	4
White clover.....	2
Alsike clover.....	<u>2</u>
<u>Total.....</u>	21

These grasses were seeded separately in duplicate on plats 60 sq. feet in area in field A-II-14. The following grass mixtures were also planted in duplicate on plats of the same area in field A-II-14:-- 1.- Brome grass, orchard grass; 2.- orchard grass, tall fescue; 3.- Kentucky blue grass, white clover, Alsike clover; 4.- tall fescue, perennial rye grass, brome grass; 5.- orchard grass, tall fescue, white clover, Alsike clover; 6.- orchard grass and Alsike clover; 7.- complete mixture of all the grasses and clovers in the test. The purpose of planting these small plats is to make observations as to the rate and periodicity of growth of these separate grasses and grass mixtures during the different times of the season.

Alfalfa in field A and pasture grasses in field B-V and A-II were irrigated. The weather during the past month was unusually dry and cold, and rain is badly needed for the germination of spring planted crops.

A sheep pasturing test was started in field B-V on May 6, five ewes averaging in weight 136 pounds each and their lambs with an average weight of 75 pounds each were placed on a one-

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

half acre pasture of mixed grasses in this field. The total weight of the ewes and lambs was 1054 pounds. The pasture is divided into two plats of one-quarter acre each. One of these plats was planted in April, 1915, to the following mixture, with wheat as a nurse crop:- Brome grass, orchard grass, meadow fescue, tall fescue, perennial rye grass, Kentucky blue grass, and white clover. A good stand was secured and the grasses had started a fair growth before the sheep were placed on the plat. The other plat was planted on August 25, 1915, to the same grass mixture with the addition of alsike clover. A very excellent stand was secured on this plat and the early spring growth was almost equally as good as on the spring seeded plat.

On May 7, a two-year-old heifer was started on pasture on plats BV-4 and 5. Each of these plats contains one-quarter acre and were both planted in April, 1915, to the grass mixture described above, plat 4 without a nurse crop, and plat 5 with a nurse crop of wheat. The stand of grasses on plat 4 was excellent and on plat 5 the stand secured was fairly good and the spring growth nearly equal to that on plat 4.

Irrigated Rotation Report.

Flax and first year alfalfa plats were seeded on May 1. This completes the planting of all the crops in the irrigated rotations with the exception of corn and potatoes.

Laterals and drain ditches were cleaned.

Five fall pigs, having a total initial weight of 524 pounds were placed on the alfalfa pasture in rotation 67. These pigs during the first part of February were placed in a feed lot and fed a ration consisting of 1 per cent corn, 1 per cent ground wheat per hundred pounds live weight, and 15 pounds of alfalfa hay per day. The table on the following page shows the results obtained for the period from February 10 to April 30.

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Field Notes.

Huntley (continued).

Hog No.	Initial Weight	Final Weight	Gain	Av. Daily Gain	% Daily Gain
51	53	108	55	.69	.87
52	49	98	49	.61	.85
53	50	99	49	.61	.84
54	56	108	52	.65	.81
55	54	101	47	.59	.78
Total	262	514	252	3.15	--
Average	52	103	50	.63	.83
Length of period-- 80 days.					

Statement of cost of feed and value of increase
in pork pounds.

252 lbs. pork @ \$.07.....	\$17.64
281.4 lbs. corn @ \$1 per cwt.....	\$2.81
281.4 lbs. wheat @ \$1 per cwt.....	2.81
1200 lbs. alfalfa @ \$6 per ton.....	3.60
	9.22
Net value of gain.....	\$ 8.32

Truckee-Carson.

During the week ending April 29, the maximum temperature was 81; minimum temperature, 32. The farm was given a general irrigation, water being applied to all plats.

On April 28 about $1\frac{1}{2}$ acres on the Churchill Creamery Farm was seeded to the following mixture of grass varieties, with sweet clover included:

5 lbs. sheep fescue	5 lbs. Perennial rye grass
5 lbs. tall meadow oat grass	2 lbs. red top
5 lbs. awnless brome grass	5 lbs. orchard grass
7 lbs. sweet clover	

Pasture grass mixtures have now been planted on the Churchill Creamery Farm, F. E. Mobley's farm, and on the Experiment Farm. These experiments were established because of the increasing interest of the dairymen in pastures for their dairy cows.

Varieties of potatoes were seed in field A-2, as follows:

American Wonder, cut seed.....7 rows	American Wonder, whole seed.2 rows.
Early Rose.....5 "	California Burbank.....7 "
Dietz Burbank.....8 "	Eelworm infested seed,
	treated.....1 "

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Truckee-Carson (continued).

Eelworm infested seed,		
untreated.....	1 row.	Burbank, whole seed.....1 row
Burbank, half cut.....	1 "	Burbank, quarter cut.....1 "
American Wonder, whole.....	1 "	American Wonder, half
American Wonder, quarter cut..	1 "	cut.....1 "

During the week ending May 6, the maximum temperature was 86; minimum temperature, 29.

Nineteen varieties or strains of potatoes were planted on plat H-1 in single rows 370 feet long. The names of the varieties are as follows:

Earliest of all.	Early rose.
Rusty coat.	Dietz Burbank (exp.farm)1915.
Irish cobbler.	Dietz Burbank (purchased)1916.
New white victor.	Kents Burbank.
Hundred fold.	Gold coin.
Early Ohio.	Livingston.
Colorado pearl.	Great divide.
Rural New Yorker.	Pride of Multnomah.
Early freeman.	American wonder (exp.farm)1915
	American wonder (purchased)1916.

Another potato test was put in on field A-2 for the purpose of comparing treated and untreated eelworm infested seed and yields of whole seed, half cut and quarter cut seed of the Burbank and American wonder varieties. The seed planted was as follows:

Eelworm infested seed, treated.....	1 row.
Eelworm infested seed, untreated.....	1 row.
Burbank, whole, 32½ lbs.	1 row.
Burbank, half cut, 16½ lbs.	1 row.
Burbank, quarter cut, 9 lbs.	1 row.
American wonder, whole, 30½ lbs.	1 row.
American wonder, half cut, 16 lbs.	1 row.
American wonder, quarter cut, 10 lbs.	1 row.

The pigs on the alfalfa and sweet clover pastures were weighed on May 6. It appears from the results obtained during this first period that alfalfa pasture is much better than the sweet clover pasture in producing gains. The daily net returns per acre as shown in the following table was \$1.06 on the alfalfa pasture, as against only 27 cents on the sweet clover pasture, while the daily gain of the pigs was 1.7% on the alfalfa, and .8% on the sweet clover.

In these experiments barley will be figured at 1½ cents per pound, and the gains will be credited at 7 cents per pound as these figures represent about average values.

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Field Notes.

Truckee-Carson (continued).

I T E M .	Pigs on alfalfa pasture. Area, .25 acre period April 24 to May 6-12 days.	Pigs on sweet clover pasture Area, .59 acre April 25 to May 6-11 days.
Number of pigs.....	10	18
Initial weight, lbs.	262	598
Final weight, lbs.	321	653
Total gain, lbs.	59	55
Daily gain, lbs.	4.91	4.58
Daily gain, per cent.....	1.70	.80
Barley fed, lbs.....	62.90	131.60
Cost of barley @ 1½¢.....	\$.95	\$1.97
Value of gain @ 7¢.....	\$4.13	\$3.85
Net return.....	\$3.19	\$1.88
Net return per acre.....	\$12.76	\$3.19
Daily net return per acre..	\$1.06	\$.27

Yuma.

During the week ending April 22, the maximum temperature was 95; minimum temperature, 46; greatest daily range, 47. Twenty acres were irrigated. A great deal of hoeing and cultivating was done.

Work was begun on the date row along the east farm road, to dig a shallow basin around the palms and fill with a heavy coating of coarse straw mulching in order to control Bermuda grass growth and conserve moisture.

Fields A-23 and D-16 were prepared for cotton plantings as follows: D-16, cooperative variety test of both long and short staple cottons: A-23, increase blocks of superior Durango selections. Sweet potatoes were planted on border A-10-7.

Sudan grass was planted among the alfalfa for a pasturing experiment on fields A-1 to 8. The earliest varieties of field peas were harvested from field C-25. Barley was harvested from C-7.

A few of the roots of the long seasoned varieties of sorghums, grown in cooperation with the Office of Forage Crop Investigations, in 1914, which did not mature, were taken up and transplanted to a planting at Chula Vista, California. Mr. H. R. Reed spent the week

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Field Notes.

Yuma (continued).

at Chula Vista attending to these plantings and other forage crop plantings being made there.

The hogs being carried in the pasturing experiment have cleaned up all the field peas on E-9 and have made gains as shown in the following table.

Dates	No. Hogs	No. Days	Weight, Lbs.		G a i n .			Pounds milo fed	Net return per acre
			Initial	Final	Total	Av. daily	% daily		
4/5-4/12	6	7	596	665.5	69.5	9.929	1.55	---	\$ 9.73
4/12-4/19	6	7	665.5	678	12.5	1.786	.26	---	1.75
(Summary of alfalfa pasturing period)									
2/9-4/5	6	56	354.3	596	241.7	4.316	.933	510.75	47.25
(Summary of field pea hogging period)									
4/5-4/19	6	14	596	678	82	5.857	.924	---	11.48

The hogs are now being fed a finishing ration of grain for a ten-day period.

During the week ending April 29, the maximum temperature was 99; minimum temperature, 47; greatest daily range, 48. Thirty-nine acres were irrigated.

Land was prepared and bed plantings of Durango cotton made on borders D-25 and 26. A distance of row planting test was made on D-24. Progeny selections of Kekchi cotton were planted on A-14-3.

Seedling dates were dug from nursery A-14-4, and transplanted to orchard positions on A-16. Date, fig, and deciduous orchards and nurseries were cultivated and hoed.

The wagon scales were overhauled and a new platform made for same.

A ten-day finishing period of hogs from pasturing experiment was completed April 29. During this time these hogs continued to pasture on the one-quarter acre block of alfalfa and were fed approximately a 4.5 per cent grain ration of cracked milo. The final figures on this experiment are reported in the following table:

Dates	No. Hogs	No. Days	Weight, Lbs.		G a i n .			Pounds milo fed	Net return per acre
			Initial	Final	Total	Av. daily	% daily		
4/19-4/25	6	6	678	750.5	72.5	12.08	1.71	180	\$13.12
4/25-4/29	6	4	750.5	809	58.5	14.62	1.90	136	10.92
4/19-4/29	6	10	678	809	131	13.1	1.718	316	24.04
(Summary of entire pasturing and feeding period.)									
2/9-4/29	6	80	354.3	809	454.7	5.68	1.41	826.75	94.24

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Umatilla.

During the week ending May 6, the maximum temperature was 83; minimum temperature, 36; precipitation, .08 inch.

Fields A-2 and A-3 were prepared and planted to corn, feterita and sudan grass for determinations of frequency of irrigation necessary for best results. Three plats of each were planted in rows and an additional three plats sown broadcast to sudan grass. A record is being kept of the frequency of irrigation of each plat, and the amount of water used.

Irrigation of the various fields was continued. Soil moisture determinations and the season's determinations with the lysimeters were continued according to schedule.

The season is unusually backward and frequent severe winds continue to occur.

Belle Fourche.

During the week ending May 6, the maximum temperature was 86; minimum temperature, 26.

Planting of sugar beets and potatoes was completed in the irrigated rotations, fall irrigation experiment and dry land rotations. The following varieties of potatoes were planted in field O, on old alfalfa ground. Each variety was planted in three replications.

Rural New Yorker	Green Mountain
Peerless	Pearl
Burbank	Triumph
Peach	Olds Prolific
Red River Acme	Extra Early Ohio
Eureka	Russet
15044	Carmen No. 3
4452	Albino
8114	Early Ohio
Cobbler	Sir Walter Raleigh

Series II, III and IV, in field E, were planted to brome grass in rows for increase of seed, and series III and IV, in field D, for increase in seed of alfalfa.

San Antonio.

During the week ending May 6, the maximum temperature was 87; minimum temperature, 52; greatest daily range, 27. A rain of 1.10 inches came on Monday night, which benefitted the growing crops

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

San Antonio (continued).

greatly. Corn is growing very rapidly, is of good color, and looks extremely well. Practically all of the cotton on the station has germinated. A very good stand was obtained on all the rotation plats except B6-17. Rye was plowed under on this plat. Good stands were obtained in practically all of the other plantings.

On account of soil conditions, no field work was done until Wednesday. On Wednesday, the last pasture (plats 9 and 10) in the winter oats-Sudan grass pasturing experiment was plowed and harrowed preparatory to planting Sudan grass. On Thursday, cultivation was started. All of the corn and nearly all of the cotton on the station had been cultivated by Saturday night. The orchards were also cultivated. Sudan grass was planted on plats 9 and 10 in the steer pasturing experiment on D-3. For fear that a good stand would not be obtained from the first planting of Sudan grass on plats 11 and 12, in the steer pasturing experiment, on account of the dryness of the soil at planting time, Sudan grass was planted the second time on these two plats. Corn plats in the rotation experiments were weeded.

A fence was constructed around the plat of Sudan grass on field D-3, to be pastured by hogs, and pasturing on this plat will be started today.

Mr. Robert Martin arrived from Washington the first part of the week, and will assist with the cotton work on the station the remainder of the season.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Huntley.

During the week ending May 6, 8 farm visits were made.

Three days of the week were spent in the office working on dairy records and other office work that has been accumulating for some time.

One herd of 22 hogs was treated for lice.

The large scales which were loaned to Mr. Plato Pickens last year for the purpose of carrying on some feeding trials were removed to Mr. Paul Sherman's place near Ballantine, where it is planned to carry on a number of feeding tests with swine this summer and fall. Mr. Sherman is one of the largest hog raisers on the Project, and it is expected that some valuable information will be ob-

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Huntley (continued).

tained from the feeding test that will be conducted with Mr. Sherman's cooperation.

A meeting of the Ballantine cheese factory stockholders was attended on Wednesday night of this week. Articles of agreement and by-laws that had previously been agreed upon were formally adopted, stock certificates were issued to all parties who had previously paid in their money, and the necessary provisions for completing the organization according to law were made.

Boise.

The work during the week ending April 29 included attendance of 3 meetings, 2 for the purpose of discussing hog cholera control, and one in the interest of boys' and girls' clubs. The season is not favorable for meetings, as farmers are rushing to get spring seeding finished and irrigation has begun.

Hog cholera has again appeared in the vicinity of Wilder, where it was so acute and wide-spread in 1913. In the herd of Geo. Obendorf, one hog showed symptoms of cholera Friday morning, 10 were sick by night, 14 by the next morning, and by afternoon when they were given serum treatment, in a bunch of 32 where the disease appeared, only 4 showed normal temperatures. Heavy doses of serum were used but the prognosis of the case is not favorable. In the herd treated on the 19th, none had died up to the 24th, but apparently only those which were normal at the time of treatment will live.

On Monday, of the week ending May 6, the monthly meeting of the directors of the Grazing Association was held at Meridian. The sentiment of the association is very strongly in favor of federal supervision of the public range lands of this State. Some petitions have been circulated requesting the support of such a plan by the Idaho delegates in Congress, which are almost universally signed whenever presented.

On Tuesday night at Fargo, silos and pastures were discussed with 12 men and illustrated with lantern slides.

On Wednesday, a call was received to examine hogs on the farm of M. H. Sebern, of Nampa. These hogs were given serum-alone treatment as pigs on Oct. 18, when cholera was present in the herd. They weigh now about 175 lbs. and appeared thrifty except three, which showed symptoms of cholera. No autopsy was held but the herd was treated on suspicion at Mr. Sebern's request. Only two normal temperatures were found.

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DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Boise (continued).

The other herd examined this week showed no indications of cholera. The hogs had been running on pasture with light feed and were closely confined and put on full feed. When trouble developed, the tails of several pigs were cut off and one of these apparently bled to death. Access to the pasture was given again and no further trouble has developed. In the herd of Mr. Baum which was treated on the 19th of April, 8 of 11 head have died.

Shoshone.

During the week ending April 6, 17 calls were received and 17 farms were visited.

Work is progressing in seeding mixed grass pastures. Several of the farmers are preparing the land as for beets, by corrugating and irrigating and then leveling again before seeding.

A movement is being started to ship in some heifer calves and good bulls this fall. Mr. Hallman recently expressed in from the Edgewood Farms of Whitewater, Wisconsin, 9 heifer calves and one bull calf about four or five weeks old. They were on the road three days and arrived in good condition; they cost \$20.00 there, and \$7.00 express each.

They are grades, guaranteed to be from 7/8 to 31/32 Holstein and of excellent breeding. For four years farmers in the community in Colorado which Mr. Hallman recently left have been shipping in calves from that farm, and so far the calves have proven satisfactory.

An article was written for the local papers on the danger of hogs being poisoned by young cockle burr plants. Several hogs were lost here last year for that reason.

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FIELD NOTES.

San Antonio.

During the week ending May 13, the maximum temperature was 97; minimum temperature, 66; greatest daily range, 30. There was no precipitation and corn and forage crops are beginning to show the effects of dry weather by wilting noticeably during the hotter portion of the day.

Weeding was the principal field work done during the week, extra men being used to chop out Johnson grass which had grown rapidly since the last rains.

Leaf curl or tomosis is affecting cotton seed seriously this spring in spite of the fact that no low temperatures, sudden changes, or wide variations between day and night temperatures have occurred.

Some varieties of flax are still flowering in CI-25, the white flowered type being most persistent in this respect.

Belle Fourche.

During the week ending May 13, the maximum temperature was 92; minimum temperature, 25; precipitation, 1.06 inch.

The corn in the irrigated rotations and fall irrigation experiment was planted the first of the week.

The worst storm on record occurred on Wednesday and Thursday. The average wind velocity for 24 hours was 27 miles an hour and the maximum at Orman Dam was 70 miles an hour. Some four hundred blocks were displaced in the facing of the dam. The storm did considerable damage to grain, especially on summer fallow and corn ground. The last of the week we have had rains and cold weather which have helped to revive the grains.

On the 8th, the cow and calf were turned on the south pasture west of the buildings. This pasture consists of a mixture of 20 pounds of brome grass, 12 pounds of western wheat grass, and 3 pounds of alfalfa per acre.

On May 11, 4 pigs, total weight, 413 pounds, were turned on alfalfa pasture in rotation 69, plat A II-33, and 4 pigs, total weight, 409 pounds, were turned in on rotation 65, plat A III-14. A ration of 2 per cent. corn is fed to both lots.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Belle Fourche (continued).

Condition of Pasture Grasses at Bellefourche, May 1, 1916.
Notes by A. C. Dillman.

The early growth in mixtures A, B and C is not nearly equal to the growth in the main mixture, consisting of brome grass, western wheat grass, and alfalfa. This lack of vigor in the three mixtures is probably due to the crowding of the rye-grasses during the first season's growth-1915. The rye-grasses which were dominant in 1915 are apparently fdead at this time. It seems that Italian rye grass and perennial rye grass should be used in very small amounts in a grass mixture for this locality, though they are of value to give a quick pasture during the first season.

Plat 1. Brome grass prominent, 3 inches high. A good stand of redtop present.

Plat 2. Kentucky blue grass, Italian rye grass, and orchard grass. This plat is in very poor condition. No green growth at the present time.

Plat 3. Tall fescue, western wheat grass, and perennial rye grass. The tall fescue and wheat grass are starting growth well at this date. Both species about two inches high.

Plat 4. Kentucky blue grass, white clover, and alsike clover. There is a rather poor stand (about 40 per cent. full stand) on this plat but all three species are present and growing.

Plat 5. Slender wheat grass, brome grass, Canada blue grass and alfalfa. The wheat grass and Canada blue grass did not germinate in this plat. Both the brome grass and alfalfa show a vigorous growth.

Plat 6. Brome grass. There is a good stand of plants and the grass is making a vigorous early growth.

Plat 7. Slender wheat grass. There is only about 5 per cent. stand in this plat, due to poor germination of the seed. The few plants present are vigorous.

Plat 8. Western wheat grass. Plants about 3 inches high. The stand is too thick for the best growth of this grass.

Plat 9. Orchard grass. There is a good stand of orchard grass but it is rather late in starting growth.

Plat 10. Meadow fescue. This plat is in about the same condition as the preceding plat.

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Field Notes.

Belle Fourche (continued).

Plat 11. Tall fescue. The tall fescue is much earlier and more vigorous than the meadow fescue at this date. Plants about 3 inches high. By May 5th the meadow fescue had gained somewhat.

Plat 12. Timothy. Plants starting growth, $1\frac{1}{2}$ inches high. A good stand.

Plat 13. Redtop. Good stand, plants $1\frac{1}{2}$ inches tall.

Plat 14. Italian rye grass. This grass is dead apparently though a few plants look as if they may revive later.

Plat 15. Kentucky blue grass. About 20 per cent. of stand. Plants small though starting growth nicely.

Plat 16. Alsike clover. A good stand of plants, 1 inch high.

Plat 17. White clover. 75 per cent. stand. This plat is in about the same condition as the preceding plat.

Plat 18. Agropyron desertorum. Plants 3 inches high and fully as vigorous and early as the brome grass.

Yuma.

During the week ending May 6, the maximum temperature was 100; minimum temperature, 43; greatest daily range, 49. Fifteen acres were irrigated.

Several laborers were kept busy during the entire week at miscellaneous hoeing. Also considerable disking and cultivating was done.

Wheat was harvested from D-6 and 7 and Sudan grass from E 5-6.

Ground was prepared and Durango cotton planted on beds on borders C-44 and 45. These lands were planted in order to test this method of culture on heavy silt soil. Durango progenies were planted on A-24.

The earliest dew-berries and black-berries in the variety test on A-106 are ripening. The development of these fruits is very encouraging, as a heavy crop of fruit is being produced by several varieties. Tafilet date seedlings were transplanted from nurseries to positions as follows: C-42, 153; row along west road, 60.

During the week ending May 13, the maximum temperature was 101; minimum temperature, 41; greatest daily range, 50. Twenty acres were irrigated.

Seventy-six Tafilet seedling dates were transplanted to C-43.

The usual amount of hoeing and cultivation continued this week. Old straw and compost were hauled and applied as a heavy mulch along the date row on the east farm road.

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Field Notes.

Yuma (continued).

The second cutting of alfalfa hay was harvested from borders B-6 to 10, C-21-22-24-39-40, D-17-18-19-21-22-23, and E-7-8.

Bamboo plantings were pruned of dead growth and brush hauled.

Enough cement posts have been poured from time to time during the past few months to replace about one-quarter mile of the farm fence.

Huntley.

During the week ending May 13, the maximum temperature was 81; minimum temperature, 23; precipitation, .17 inch.

Weather continued dry and rather cold until Saturday, when there was a light rainfall. Because of the cool weather, crops are making but slow growth. Frost on the night of May 8 has apparently destroyed all of the fruit buds and injured alfalfa, barley and garden crops.

Alfalfa in fields M (Worden), K and C was irrigated.

Two cows were started on pasture, in plats A II-1-2-4, on May 8.

Irrigated Rotation Report.

Second and third-year alfalfa plats have been irrigated for the first time.

Corn was planted in fields K and L-IV, and potatoes in L-IV. Rain has interfered with the planting of potatoes in field K. Fall pigs on alfalfa pasture made the following gains:

Alfalfa pasture and 2% corn, field K, rotation 67.

Hog No.	No. of days	Initial weight	Final weight	Average daily gain	Per cent daily gain
51	10	110	128	1.8	1.51
52	10	100	114	1.4	1.34
53	10	101	116	1.5	1.40
54	10	110	126	1.6	1.37
55	10	103	117	1.4	1.31
Total	--	524	601	7.7	----
Average	10	105	120	1.5	1.38

Pounds of corn consumed.....104.8

Pounds grain per pound gain..... 1.36

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

The results shown in the above table are for the first ten day period of the pasturing experiment. The initial weight represents the average of three weights, the first being taken the day before the pigs were placed on the alfalfa, and the other two, the first and second days on the pasture.

Scottsbluff.

For the week ending May 6, Mr. Knorr reports:

The fore part of the week the men were kept busy plowing and preparing land for potatoes, also floated and harrowed on field K.

On Tuesday the ditches were gotten in shape, preparatory to irrigation. On Wednesday noon the first water came into the ditch, and three men are kept busy running the water. At this time we are irrigating our alfalfa, and unless we have rain within the next day or two we will begin to irrigate our corn, beets and small grain. This stuff is not up as yet, but believe it is better to irrigate it up at this time than to wait for rains that may come later on.

Dean Burnett, Mr. Snyder, of North Platte, and Mr. Woodward, Assistant in the State Dairy Department, visited the station May 5.

Mr. Knorr reports as follows for the week ending May 13:

This has been a very strenuous week for our farmers. Last Sunday, May 7, we had a very high wind, at one time attaining a velocity of 48 miles per hour. Large quantities of sand drifted, either destroying some crops or completely covering them. This wind was followed by very warm weather the next day. On May 9 the wind again began to blow, attaining a velocity of 40 miles per hour, but this wind did more damage than the higher wind two days previous.

The west hog pasture, on field D, was drifted in with the sand part of the way across the first field on the west side. The hog pasture along the edge of field K was almost entirely covered by drifting sand. Many of the small grain plats on field E, and Prof. Chilcott's work, are practically destroyed. If we had rain they would recover, but under present conditions it is very doubtful. The small evergreens west of the orchard are submerged in sand for the third time this year. The sand from the dry land blew into the garden and destroyed all the garden planting for the second time this year.

During the week the sugar beet plats in field K were irrigated and a portion of them planted. We have irrigated practically all of the alfalfa on the farm, also, a portion of the barley and have tried to irrigate up some of the early planted sugar beets. We

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff (continued).

have tried to irrigate up some of the small grains on field D, but it is impossible to do this on these hill sides on account of washing. Field D, series IV, was so badly washed by trying to irrigate up the grain that we may have to reseed this. Where land is comparatively level this kind of irrigation will do very well, but not on the steeper land.

The cows were put on the pasture for the first time May 10, but on account of the cool weather and high winds, etc., the grasses are making but very little growth.

The small grain that is up, on the irrigated portions of the farm, suffered considerable from the winds, some being cut off and other portions covered by the sand. The horse-beans that were planted on field C, series I, were up in very good shape, but at present only a few scattering plants remain, being a very tender growth they were the first to be damaged by the wind.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Minidoka.

Week ending April 22.

The entire week was spent in connection with the hog cholera control Association, visiting district leaders, surveymen, and farms where cholera outbreaks had occurred in 1915, strengthening the organization and studying the present conditions.

Two cases of cholera were discovered, one in response to a call from Mr. Schoenfeldt in the Emerson District where the disease had been last June, and one on the farm of Mr. Neilson in the Pella District, found as a result of a visit. Cholera had been on Mr. Neilson's farm last August.

The present case of cholera on Mr. Schoenfeldt's farm is not a re-occurrence as it was due to the return of a borrowed drill from Mr. Martin's farm which is now under quarantine. The drill passed through the infected lots, gathering manure which was dropped in Mr. Schoenfeldt's pasture.

The case at Mr. Neilson's was a re-occurrence. The young pigs had been dying all spring but Mr. Neilson did not report as he feared that the disease might be of such a nature as to make it necessary for him to clean and disinfect the hog lots and he wished to escape this extra labor. When the farm was visited only two spring pigs were alive. An examination of one that had recently died showed cholera to be the cause of the trouble. None of the old hogs that

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

Minidoka (continued).

had been immunized last August showed any symptoms of the disease.

On Saturday, the State land remaining on the Project was offered for sale at public auction. Approximately 3,000 acres of land were sold at prices ranging from the appraised price of from \$10 to \$15 per acre to \$54 per acre. The prices paid were high for rough sagebrush land.

During the week ending April 29, the work was largely a continuation of that of the previous week, namely, visiting the district leaders and surveymen and other prominent swine growers.

In spite of the low prices of 1915 there has been no decrease in the number of breeding animals. Because of the weather conditions in February and March the average number of pigs saved is less this year than last. The loss of the spring pigs is estimated to be 15% greater this year than last.

The estimated losses are approximated as follows:

Exposure to storms and cold.....43%

Improper methods of feed and management:

Small, weak litters29%

Sows eating pigs.....14%

Hairless pigs..... 6%

Thumps..... 3%

Miscellaneous (Loss of runts, accidents,
coyotes, etc.)..... 5%

The methods of care and management as a whole are better than formerly, although there is yet room for great improvement.

In a few districts the hogs are still allowed to run at large to some extent.

During the week ending May 6, four calls to investigate sickness of hogs were received. One was found to be meat poisoning; one, digestive troubles from the feeding of too much wheat; one, pneumonia; and one, cholera.

The cholera was on the farm of Ernest Cooke in the View district. It was of the acute type with a number of very high temperatures. The infection was mostly in a herd of October shoters. Nine sows and 51 small pigs in the adjoining pasture showed but few temperatures or other evidences of cholera.

The source of the infection is unknown but is supposed to have come from dead hogs thrown in the sage brush adjoining the Project.

Two other reports of dead hogs in waste places were received from swine growers. These were investigated with the usual result, namely, that the guilty parties were not discovered but the dead animals disappeared during the night.

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Minidoka (continued).

On Saturday night there was a severe wind, sand and dust storm which backed up the water and broke the banks of the main canal on the North Side. The weather has been very dry so that there was much damage to the grain and beet crops especially on the sandy land where the seed was blown out of the ground or the young plants were cut to pieces by the sand. After the storm the temperature dropped to below freezing.

North Platte.

During the week ending April 22, a car load of shoats were shipped to the State Serum Plant at Lincoln by the Farmers' Cooperative Store at Morrill; price paid, \$8.50. At the present price of hogs the farmers can well afford to feed out their shoats rather than sell them at this price especially when they have plenty of alfalfa pasture.

Friday night a lantern slide lecture relating chiefly to the swine industry was given at Shamrock School House; attendance, 30.

Most of the week was spent out in the field visiting farms, doing general field work. Plans were made for conducting a farmers' excursion trip to visit some of the swine farms in the eastern end of the valley week after next.

Mr. Warner, State Live Stock Extension, State University, spent one day on the Project.

During the week ending April 29, one herd of 100 shoats were vaccinated for cholera during the week. This was on the farm of Mr. Brewer where cholera broke out three weeks ago as a result of shipping in some shoats from Torrington, Wyo. When the shoats were purchased they were kept separated from another bunch of 100 shoats that were on the same place. When the farm was visited last week there was no evidence of cholera in the shoats that had been raised on the place. However, it showed up later and they were vaccinated.

During the week a trip was made to Torrington to visit the County Agent of Goshen County and to investigate the prevalence of cholera in that locality. It was there learned that the shoats were not even inspected by a veterinarian before being shipped from that state to this, as is required by law.

As soon as it was learned that there was cholera in the herd near Torrington the State Veterinarian of Wyoming at once took charge of affairs and quarantined the farm, and County Agent Helmrick vaccinated the herd. So far the disease has not spread and with ordin-

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North Platte (continued).

any precaution there is little likelihood of it doing so as there are but few hogs in that locality. This is the first outbreak of cholera ever known to have occurred in that locality and its source is unknown.

Thus far the two outbreaks of cholera that occurred from the shipping in the car load of shoats, above mentioned, has been confined to the two farms.

A visit was made to the Farmers' Union Store at Minnitare. They have been operating about three months now. They did a \$7,300 cash business the first month.

Twenty Poland China breeding gilts were selected for L. R. Latham during the week. On Tuesday the shoats in F. Young's feeding demonstration were weighed. The results are given below:

Duroc Jersey Shoats--Second Period.

I T E M .	Ration.	
	Alfalfa Hay, Corn and Skim Milk.	
	Lot No. 1. Meal Meal	Lot No. 2. No Meat Meal
Date begun	Jan. 5	Jan. 5
Date ended	April 25	April 25
Length of period, days.....	111	111
Number of pigs.....	22	22
Total initial weight, pounds.....	1193	1101
Average initial weight, pounds.....	54.4	47.9
Total final weight, pounds.....	3320	3162
Average final weight, pounds.....	150.9	143.8
Total gain, pounds.....	2127	2061
Average daily gain, pounds.....	.87	.84
Value of gains at 7¢ per pound.....	\$148.89	\$144.27
Value of gains at 9¢ per pound.....	\$191.43	\$185.49
Corn fed, pounds.....	9240	9240
Meat meal fed, pounds.....	293	----
Skim milk fed, pounds.....	1600	1600
Pounds of grain and meal per 100 pounds gain.....	448	448
Pounds of skim milk per 100 pounds gain.....	75	77
Total cost of corn and meal, corn at \$1.27 per cwt.; meal at \$3 per cwt..	\$126.14	\$117.35
Total cost of skim milk at 25¢ per cwt.	\$4.00	\$4.00
Total cost of all feeds, exclusive of alfalfa hay.....	\$130.14	\$121.45
Cost of feed per 100 pounds gain.....	\$6.11	\$5.90
Value of gains (@ 7¢ per pound) less cost of grain.....	\$18.75	\$22.82
Value of gains (@ 9¢) less cost of grain	\$61.29	\$64.04

DEMONSTRATIONS ON RECLAMATION PROJECTS.
Field Notes.

North Platte (continued).

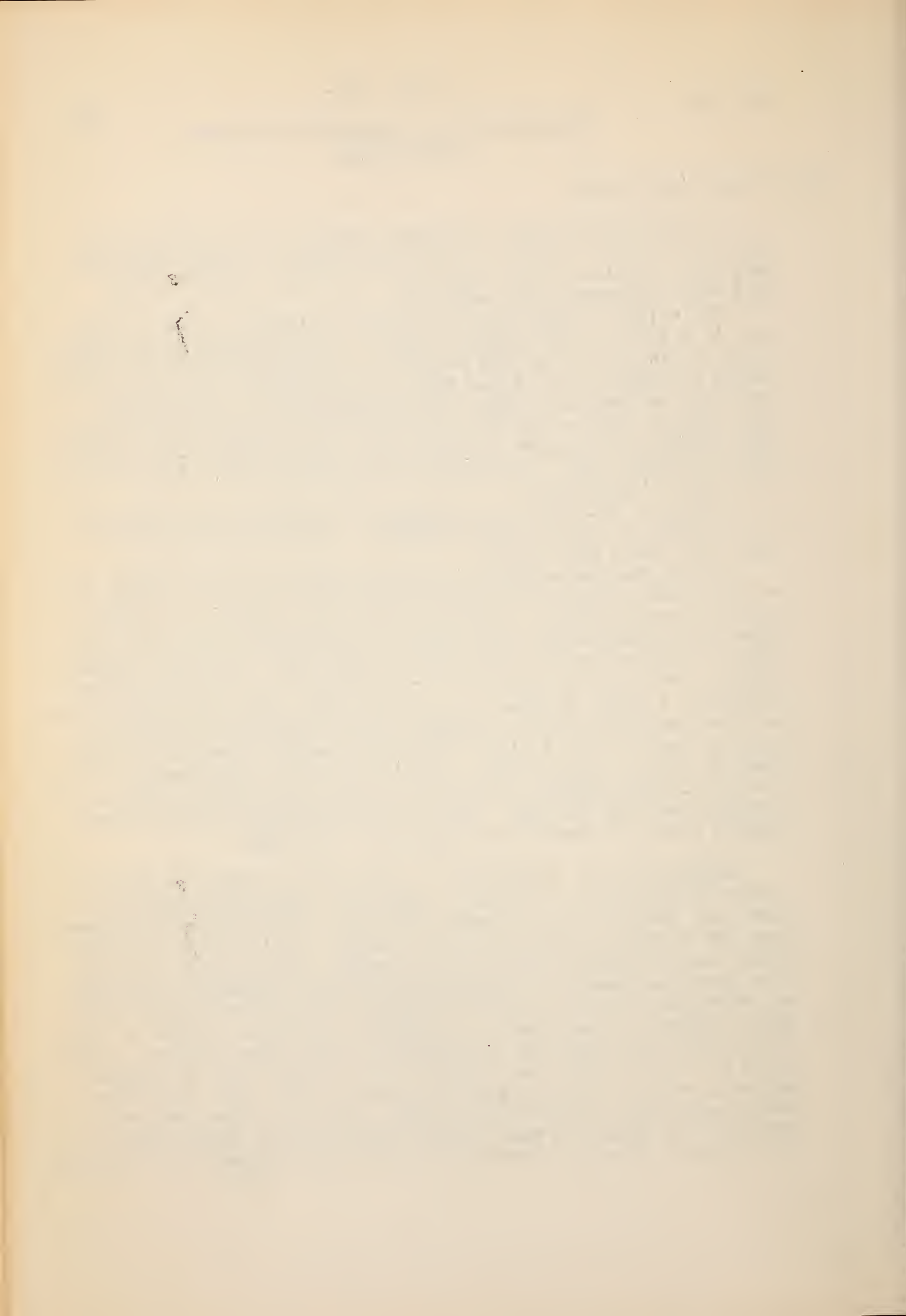
In this feeding test, 22 shoats were fed for a period of 111 days in a dry lot. Lot No. 1 received a ration of corn, meal meal, skim milk and alfalfa hay. Lot No. 2 received a similar ration with the exception of the meat meal.

The object of this was to feed the shoats just enough to keep them in a good thrifty condition and to keep them gaining some, later to be finished on alfalfa pasture. As meat meal could not be had during the latter part of the test there was about 6 weeks when both lots received the same ration. Both lots were in a very thrifty condition at the close of the test. The lot receiving the meat meal made slightly the largest gains, but the cost was also some greater, and the profits less. In this case the meat meal did not add to the efficiency of the ration.

The chief value of this feeding test perhaps is that the cost of wintering the shoats was determined. At the present price of hogs there was a fair profit.

During the week a visit was made to the farm of Mr. Eckman, one of the farmers that built a new hog house this spring. The house is 18 ft. by 60 inches, running long way north and south, with 4 ft. alley way through center, and pens on each side with exercise pens outside. Windows are on sides, one for each pen. He is well pleased with the house and has lost but very few pigs out of 175 that were farrowed. A visit was made to the farm of Mr. Jones, Dry Sheep Creek, who has been successful in stopping the sore mouth that started in his pigs early in the spring. When the trouble started he was advised to dip the pigs in a strong solution of the permanganate, clean out the sleeping quarters and clip off the pigs' tusks as soon as farrowed, and dip the pigs. This he has been doing and has no more trouble with sore mouth in his pig crop of 170 pigs.

During the week ending May 6, a call was received from the vicinity of Minatare to vaccinate a herd of 17 shoats that were on a farm near where cholera occurred last month. On Wednesday 22 farmers from the vicinity of Mitchell left in auto to visit some of the hog farms east of Mitchell and in that vicinity. At each farm the hogs were inspected, manner of feeding and watering explained, hog houses and sheds investigated and all equipment used in connection with the swine industry on each farm was carefully examined. A total of approximately 2500 hogs were represented on the 6 farms visited. A distance of about 60 miles was covered on this trip. Had the farmers not been so busy many more would have gone on the trip. Those that did go were well pleased with the trip, and many of them have expressed their desire to make another similar one to another part of the Project. This will probably be done within the next 2 or 3 months.



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Tieton.

During the week ending April 22, fourteen farms were visited and seven office conferences were had with farmers. Three of the farms were visited in regard to dairy stock for sale; two to test milk, and three to vaccinate against blackleg. Seven calls for assistance were received, and one day was spent at an auction sale of dairy stock to assist in selecting cows for Project farmers.

The dairy herd at auction was composed of old mixed grade cows, 15 good grade Holstein heifers, most of which had milked since last fall, the heifer calves from the old cows for the last two years, and the calves from the heifers. A pure bred bull had been used for all the cows. The old cows sold at from \$50 to \$65. It is doubtful that there were worth the price for dairy purposes but there seemed to be a number who preferred them to the younger dairy stuff. The 15 Holstein heifers sold at from \$75 to \$110, and they were sought by a limited number of bidders. Calves from these heifers averaged about \$30 each, and those from the old cows brought nearly as much. Tieton farmers bought 9 head in all, including an 18-months pure bred Holstein bull of good pedigree, for \$87.

A visit was made to H. C. Davis' Holstein farm at Granger, on the Sunnyside Project, in regard to prices of pure bred bulls. His prices are as follows: Bull calves under 18 months from untested heifers, \$100; from cows or heifers with only fair records, from \$100 to \$200; and up to \$500 for calves from the best cows. Mr. E. B. Marks of Wiley City prices his bulls on about the same scale.

Average prices paid for farm produce during the week are as follows: Potatoes, \$25 per ton; alfalfa hay, \$22 per ton; choice steers, \$7.50 per cwt; prime hogs (grain fed, 165 to 200 pounds), \$8.50 to \$8.75 per cwt; and butter fat, 30 cents per pound.

During the week ending April 29, 16 farms were visited and 12 office conferences were held. One call was received for assistance, milk was tested on 11 farms, and daily records were discussed on 4 other farms. One meeting was attended and one lecture given. Three days were spent at the office for conferences by appointment and dairy record work.

A private company, the Cowichiee Cheese and Butter Company, has begun building a combined cheese and butter plant at Cowichiee, a point in the northern part of the Project. Their plans, in general, are to buy only milk and cream of good quality and to attempt to market a quality product on the home market. The local creameries and centralizer branches have usually paid a price for butter fat about 2 cents below the Seattle butter market quotation. The Cowichiee Company expects to be able to pay at least as high as the Seattle quotation for butter fat in cream by reason of their quality standard and have announced that they will begin paying 4 cents

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Tieton (continued).

above the Seattle butter quotation for butter fat in whole milk. A meeting was held at Cowichee to discuss problems incidental to marketing milk and taking better care of cream. The matter of whey for calves and pigs was given considerable attention, emphasis being given to the Western Dairy Division's report of the use of whey in Sheboygan County, Wisconsin.

The average price paid for alfalfa hay during the week is the same as for last week. Potatoes have dropped to \$16.00 to \$18.00 per ton. Steers and prime hogs have remained the same. The average price for butter fat during the month of April is 30.1 cents per pound.

The dairy records for the month show that there was very little hay fed to cows as the majority were on native grass pasture, either unoccupied sagebrush land or range adjacent to the Project. The irrigated mixed-grass pastures have given better feed than have the wild grasses, the Kentucky blue grass being especially early and of good growth.

Two carloads of dairy cows were shipped to Idaho from the Yakima Valley during the past two weeks, and local stock buyers have received requests for five more carloads. Good dairy cows, fresh or due to freshen soon, are hard to find and are selling locally at from \$85 to \$110. There is an almost unlimited quantity of stuff for sale at cheaper prices but the offerings are unattractive.

Shoshone.

During the week ending May 13, 9 farm visits were made, 14 calls were received, 3 articles were written for the local newspapers, and 7 samples of milk were tested for four men.

Brome grass pasture on the Bartlett farm, which has already been pastured quite satisfactorily for two years, is showing up quite well again this spring, and the dairy herd was turned on it May 12.

Mr. Bartlett has been feeding alfalfa silage which was put up from the first cutting of alfalfa hay last summer, and he is very well satisfied with the results obtained. As the cows will eat very little of this alfalfa silage for a while now they are on the pasture. He expects to finish feeding the silage later in the summer.

The following data was obtained from J. L. Werts on results of full feeding hogs on a mixture of five parts of alfalfa meal and

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Shoshone (continued).

eight parts of ground oats, together with available skim milk. They had been on the same ration for 38 days preceding this, during which time they had made an average daily gain of 4/5 pound at a feed cost of \$4.58 per cwt. gain. The data on the feeding period now under consideration are as follows:

Number of hogs in test.....	15
Date of initial weight.....	Apr. 6.
Date of final weight.....	May 9
Number of days in period.....	33
Total initial weight, pounds.....	1200
Average initial weight, pounds.....	80
Total final weight, pounds.....	1718
Average final weight, pounds.....	114.5
Total gain, pounds.....	518
Average daily gain, pounds.....	1.05
Average gain, pounds.....	34.5
Value of gains @ 7¢ per pound.....	\$36.26
Feed consumed, pounds:	
Alfalfa meal, 8 700	
Ground oats 1120	
Skim milk 920	2740
Pounds feed per hog per day:	
Alfalfa meal 1.41	
Ground oats 2.26	
Skim milk 1.86	5.53
Total cost of feed:	
Alfalfa meal, 700 lbs. @45¢ per cwt.	\$3.15
Ground oats, 1120 lbs. @\$1.25 per cwt.	\$14.00
Skim milk, 920 lbs. @25¢ per cwt. 2.30	\$19.45
Pounds of feed per cwt. gain.....	529
Cost of feed per cwt. gain.....	\$3.75

These hogs are in excellent condition for feeders and ought to make good gains on a finishing feed.

Uncompahgre.

Report on Trip to Wisconsin in Search of Pure Bred
Holstein Heifers.

The two weeks between May 1 and 13 have spent in making a trip to Wisconsin with the representative of the Delta business men for

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Field Notes.

Uncompahgre (continued).

the purpose of aiding in locating and selecting 50 pure bred bred Holstein heifers. Each of 50 men in Delta put up \$200 to pay for a springing heifer.

Dr. Miller, a banker of Delta, Colorado, was selected as the representative of the business men. The idea was to select heifers of good producing dams and desirable as foundation stock. After spending several days in the leading Holstein sections and in conference with field men from the college at Madison, it was found that it was not possible to purchase the animals for less than \$250, so it made it impossible for any animals being bought under the plan as the overhead charges in shipment would have increased the price to nearly \$275 on the Project.

It was found that the breeders have sold down very close as the result of scores of buyers since the first of the year. The breeders do not care to sell any pure breds and naturally ask a higher price for their heifers.

The counties of Jefferson, Waukeesha, and Green were visited. The breeders in the first two counties named are doing a great deal of advanced registry work. After spending several days in search of heifers in these counties it was decided that if the heifers could be had at those prices that could be paid, it would be advisable to visit the breeders in Green County as they were not doing official testing. It was found that the prices were just the same from the breeders who were not doing testing as those that ere doing the work.

The sales at Lake Mills and Watertown were visited and the prices received at the sales are usually a shade higher than at private sales. Pure bred, mature cows sell for \$300 to \$390 and higher, depending on the quality and breeding. Good bulls can be had at very reasonable prices. \$100 to \$150 will purchase a bull of excellent breeding ready for service. One bull owned by Wm. Baird, of Waukeesha, the Secretary of the Waukeesha Holstein Breeders' Association, was offering a 14-months old bull of excellent conformation, for \$150. This animal is very dark in color. His dam sold to the University of Minnesota as a demonstration cow for \$750. Other bulls of equally good breeding can be bought as low as \$75. At the Watertown sale, a bull nearly white in color and aged, from the herd of S. B. Jones and Son, Watertown, Wis., was sold for \$970. This bull has 22 A.R.O. daughters. He is out of a 34-pound bull and a 22-pound cow.

Grade cows and heifers can be had in nearly all of the Holstein communities. Since the foot and mouth quarantine was raised the State has been severely combed by buyers of both classes. By taking plenty of time it is possible to buy good grades at very reasonable prices. Grade cows bring \$85 to \$100 per head. Heifers can



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Uncompahgre (continued).

be bought around \$40 and \$50. These are springers of good quality. Green County probably is the most reasonable in the purchase of Grades.

In regard to disease it was found that there has been some trouble in the different sections from contagious abortion. Buyers can best detect this trouble by the absence of calves about the premises. As the disease is being guarded very closely and where it does appear the carbolic acid treatment is being used, it is always well to make inquiry at different parts of the community, thereby the buyer is sure to learn which herds should be avoided.

The dairymen of Green County are selling their milk to the milk condensary and to cheese factories. They report a price of \$1.50 per cwt. for milk testing 3.4 per cent. butter fat at condensary. At the cheese factories they receive around 35¢ for butter fat.

A great deal of time can be saved in the importation of animals by writing the secretaries of the different breeders' associations in the State and obtaining a status of the conditions in regard to the class of animals wanted in each community. A list of these associations can be had from the dairy department of the University at Madison.

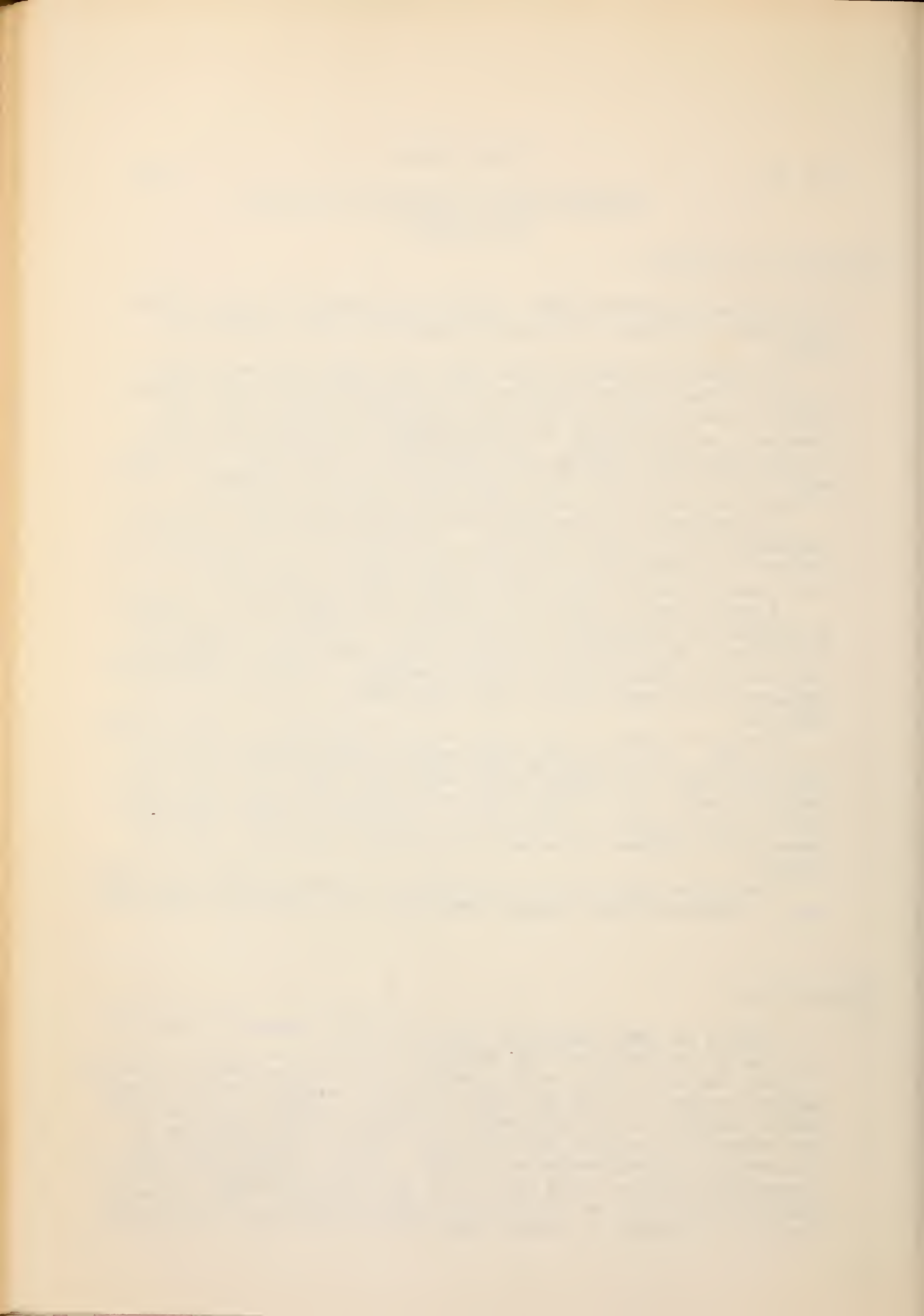
The time of year to buy dairy stock in Wisconsin is early spring or late fall. In the spring there has not been the drain on dairy stock and there is a larger supply which will affect the price to certain extent. In the late fall the breeders sell what they cannot keep over the winter. A great deal of pasturing is done during the summer which enables the breeders to run their stock at a moderate expense.

The prices being asked for Holsteins is about the same for Guernseys. Waukeesha County supplies the most of the Guernseys being sold.

Truckee-Carson.

During the week ending May 13, there were received 23 calls for assistance, and 16 farms were visited.

Mr. Farrell arrived on the Project May 6 and left May 11. On the morning of May 11 a trip was made by auto in company with Mr. Farrell and Mr. Headley to the University of Nevada, at Reno, to confer with the extension department and other departments which cooperate in the work on the Truckee-Carson Project. Much time has been spent in cooperation with the field men of the veterinary department of the State University in the vaccination against anthrax. With the exception of a few herds all animals have received the first injection of



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Truckee-Carson (continued).

vaccine and a large number have received a second injection. Several dairymen have reported unfavorable reaction in their milk cows from their first injection. A decided decrease in the milk flow was experienced with some, and extensive swellings at the point of injections. Other dairymen report no noticeable change in the general condition of the animals treated. Where strong reactions have occurred from the first injection, the second or stronger vaccine is omitted.

The weather for the past two weeks has been very unfavorable for growing crops. There has been an unusual amount of wind and the nights have been ranging near freezing point. In some parts of the Project the alfalfa has been slightly frozen at the tops. Much of the early garden has been frozen back. It is hoped now that the season is far enough advanced that no serious freezing will occur. Most of the fruit has already been destroyed, but since fruit raising is of no commercial importance here, its loss is not taken seriously.

There has been no further change in the hog cholera situation on the Project. No new outbreaks have been reported, and no further loss has been reported from the one outbreak.

Boise.

During the week ending May 13, one case of cholera occurred. This was on the farm of L. L. Young, where three separate outbreaks occurred in 1915. Mr. Young keeps a large herd of hogs and is apparently as careful with them as possible, cleaning and disinfecting the pens and houses after each outbreak, but he has been careless about disposing of chronic cases. The present case was reported as soon as the trouble was discovered; the one hog, which was visibly sick, was killed and the remainder of the bunch in which the disease appeared was treated with serum. The prognosis of the case seems favorable.

A few calls are still coming in for blackleg vaccine, and frequently the request that assistance be given in administering it accompanies the call. Some bad results following the use of the Department vaccine are reported, and it is considered advisable to supervise the use of the vaccine in cases where men are not familiar with it.

A new herd was taken into the Cow Testing Association this week to replace a herd which was withdrawn on account of the sale of a part of the cows. Only two herds remain to be tested at the close

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Boise (continued).

of this week. Mr. Beier was in the office Saturday afternoon, and his records showed that the herd of Solomon Lee, of Meridian, will head the Association for the first month with an average production of 46 pounds of butter fat per cow. There are 14 cows milking in this herd, about a third of which are heifers with their first calves. The cows are grade and pure bred Jerseys. The highest producing individual tested is a Holstein cow, her record being 63 pounds of fat. The next highest is a Jersey with a record of nearly the same. Mr. Beier reports a great deal of enthusiasm among the members of the Association.

This week has been disastrous to many Idaho farmers and orchardists. Tuesday night the temperature suddenly dropped to about 10 degrees below freezing; Wednesday night was 2 degrees colder; Thursday night was nearly as cold and there was frost on Friday night. Field crops, including alfalfa and clover suffered severely while all fruit is reported completely destroyed.

Huntley.

With the exception of Monday, of the week ending May 13, the entire week was spent in the office. A much needed rain fell during the latter part of the week.

A report on two recent cooperative shipments of swine is submitted below. The first shipment of two cars went to the St. Paul market where they topped the market for the day, April 18. The other shipment of one car was on the Chicago market on May 11, and brought \$9.65 per cwt. The hogs in each shipment were shipped by farmers residing between Ballantine and Pompey's Pillar. Mr. Paul F. Sherman, located near Ballantine, has been very active recently in promoting the cooperative idea among his neighbors and it is largely due to his efforts that these two cooperative shipments were made. Details of the shipments are as follows:

	<u>No. 1.</u>	<u>No. 2.</u>
Date of shipment.....	4/13/16	5/4/16
No. car loads in shipment.....	2	1
No. of farmers cooperating.....	6	7
Total number of hogs in shipment.....	186	96
Av. weight per hog, Lbs.....	172	190
Total weight of hogs at home, Lbs....	32100	18290
Weight of hogs when sold, Lbs.....	32570	16810
Shrinkage, Lbs.....	*470	*1480
Freight rate per cwt.....	43½¢	58½¢

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Huntley (continued).

	<u>No. 1.</u>	<u>No. 2.</u>
Total expenses of shipment.....	\$286.58	\$147.88
Total expenses per cwt.....	77½¢	\$1.59
Gross returns per shipment.....	\$3120.96	\$1622.60
Net returns per shipment.....	\$2834.38	\$1474.28
Price received per cwt.....	\$9.60	\$9.65
Net returns received per cwt.....	\$ 8.82½	\$ 8.06

* A gain of 470 pounds was obtained on the first shipment which was due to efficient handling by the attendant and liberal feeding en route, while a shrinkage of 1480 pounds was lost on the second shipment. There was no attendant with this car and the hogs were not properly fed en route.

ECONOMY IN THE USE OF SUPPLIES.

MEMORANDUM NO. 166.

May 4, 1916.

The attention of all employees of the Department should be called to the fact that present conditions point to substantial increases during the coming fiscal year in the prices of many articles in common use throughout the Department, such as furniture, stationery, electrical supplies, hardware, etc. Strict economy must be observed throughout the Department in the purchase and consumption of all supplies needed for the service during the coming fiscal year. You are directed to bring to the attention, not only of purchasing officers, but of all other employees, the requirement that no waste will be permitted. Purchase of new furniture and equipment should be limited to actual necessities, and old furniture and equipment, if still serviceable, must not be discarded simply because new articles are desired. Particularly must economy be observed in the use of stationery. Where cheaper grades of paper for carbon copies or other duplicates will serve the purpose they must be used. For intra-departmental transmission of papers, the cheapest manila envelopes meet every requirement and must be used. Lavish consumption of carbon paper and letterheads can not be tolerated, and all heads of offices should be instructed to see that employees are economical in the use of these and other stationery supplies. ALL REQUISITIONS FOR STATIONERY AND SUPPLIES SHOULD RECEIVE VERY CAREFUL SCRUTINY BY SUPERVISING OFFICERS AND THE NEEDS OF THE SERVICE CONSIDERED BEFORE THE REQUISITIONS ARE APPROVED.

This memorandum is not intended to hamper the conduct of official

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Field Notes.

Memorandum No. 166 (continued).

business or to limit the proper use of supplies for necessary purposes. It is intended to call attention to the necessity for strict economy in the use of supplies which are costing the Department more than ever before in its history.

(Signed) D. F. Houston
Secretary.

WESTERN IRRIGATION AGRICULTURE.
FIELD NOTES.

Huntley.

During the week ending May 20, the maximum temperature was 70; minimum temperature, 30; precipitation, .42 inch.

During the fore part of the week no field work could be done on account of rain. Planting of potatoes in the irrigated rotations was completed. All of the spring planting is done, excepting the corn in the plat variation test in field B-II-III, and the corn varieties in field A-IV. Preparation of this land for planting was completed, but planting was delayed by rains during the latter part of the week. Crops are in fair condition although rather backward for the season.

Umatilla.

During the week ending May 13, the maximum temperature was 67; minimum temperature, 29; precipitation, .16 inch.

Plats 7, 8 and 9, of series A, B and C, of the crop rotation experiment in field D4, on which a winter crop of rye was grown, were plowed; also, plats No. 10, 11 and 12, of the same series, that had a winter crop of vetch. All were releveled and sown to feterita in rows 37 inches apart.

The annual applications of manure given these plats were applied in the fall. Growth of alfalfa on the remaining plats is slow on account of cool weather.

Several frosts occurred and killed back a number of trees and vines in addition to reducing the crop of stonefruits and crab apples. All new growth was killed on grape vines. Foliage of mulberry, catalpa, oak and of some locust trees was injured.

During the week ending May 20, the maximum temperature was 79; minimum temperature, 31; precipitation, .03 inch.

Regular routine work continued. Crop of rye and vetch was plowed in in field C1.

During the period between the crop seasons of 1915 and 1916, Sept. 30, 1915, to April 16, 1916, 8.59 inches of precipitation was registered. During this period the lysimeters yielded the following quantities of percolate: No. 1, 7.682 inches; No. 2, 9.384 inches; No. 3, 6.663 inches; No. 4, 5.470 inches.

Water did not cease to drip from either of them during this period except for two brief periods when the tubes were frozen.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Umatilla (continued).

Since the irrigation season began, April 12 to May 18, 1916, 7.5 inches of water has been applied artificially and as precipitation. During this time No. 1 percolated 4.27 inches; No. 2, .335 inches; No. 3, .352 inches; No. 4, .326 inches.

This shows a considerable portion was utilized by the crops.

Belle Fourche.

During the week ending May 20, the maximum temperature was 64; minimum temperature, 31; precipitation 1.45 inches.

Very little field work was done during the week on account of rains.

Field K was fenced and will be used for hog pasture and one acre on the west side will be used for pasturing horses to determine the carrying capacity of alfalfa for this purpose.

The corn in the dry land rotations was planted on May 19.

Scottsbluff.

For the week ending May 20, Mr. Knorr reports as follows:

"We have had several good showers during the week, and as a result of these the crops are picking up nicely. We had hoped that some of the grain that was seriously damaged by the sand and wind would recover after the rains, but this does not seem to be the case. We will have to reseed a considerable portion of the barley on series I and II, on field A. As the grain was blown out and damaged in spots the reseeding will have to be done in the same way, and may cause a bad looking field during the season. Some of the small grain on the xdry land will also have to be reseeded, as it will not recover sufficiently to make even a fair stand.

During the week we seeded the Turkestan and the common alfalfa on series IV, field G, for comparative pasturing experiment. The first plat to the south being Turkestan, the second plat common alfalfa, third plat Turkestan, and the fourth plat common alfalfa, as per the instructions sent out by the office last fall. With the good weather that we have so far had this should come up rapidly. On account of the favorable weather this week, this alfalfa was seeded without a nurse crop, as irrigation may not be required until it becomes sufficiently high to prevent washing.

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff (continued).

The grasses were seeded on the north end of series IV and VII. Nine 1/20-acre plats were seeded to the following mixtures: Kentucky blue grass, 6 pounds; Smooth brome, 4 pounds; Meadow fescue, 6 pounds; Orchard grass, 6 pounds; Tall oat grass, 6 pounds; White clover, 2 pounds. These nine plats are located on series IV. Along the west side we seeded one border, one drill width, of the same grass mixture; also, a good wide border to the north and south, leaving a 4-ft. alley between the plats. As these grass plats are to be used for an irrigation experiment, it was thought feasible to leave a wide alley.

Series VII was divided into three equal parts, and numbered 1, 2 and 3, numbering from the west. No. 1 was seeded to the following grasses, and at the following rate per acre: Kentucky blue grass, 3 pounds; Smooth brome, 4 pounds; Meadow fescue, 6 pounds; Orchard grass, 5 pounds; Tall oat grass, 6 pounds; White clover, 2 pounds. Field No. 2 was planted as follows: Kentucky blue grass, 5 pounds; Meadow fescue, 10 pounds; White clover, 2 pounds. Field No. 3 was seeded as follows: Smooth brome, 6 pounds; Tall oat grass, 10 pounds; White clover, 2 pounds.

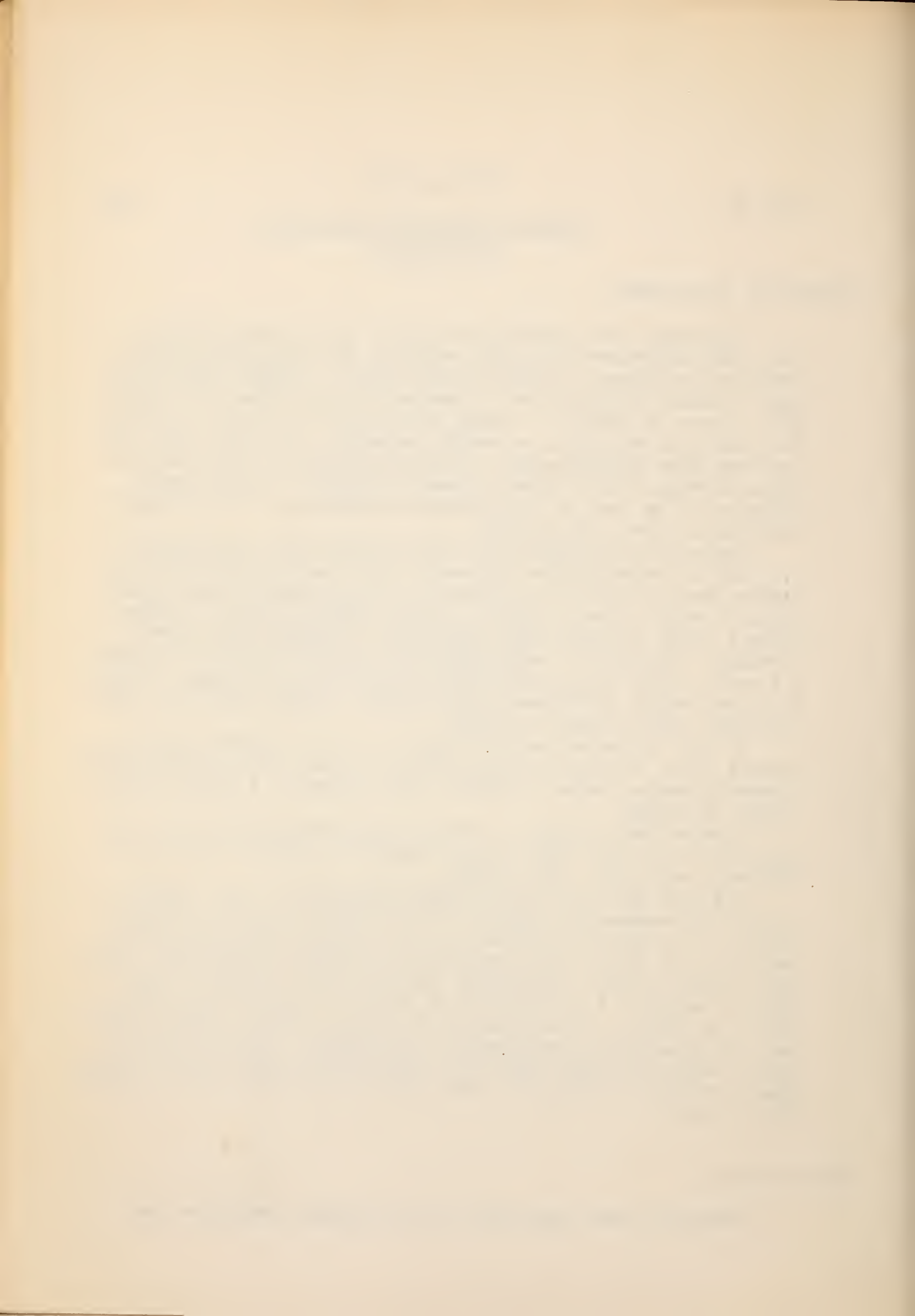
We also seeded series VI, field B, to the following mixture: Orchard grass, 4 pounds; Smooth brome, 4 pounds; Kentucky blue grass, 4 pounds; Meadow fescue, 6 pounds; Tall oat grass, 4 pounds; White clover, 1½ pounds.

Potatoes were planted on field K; the rain prevented the completion of the work. The corn was planted in field K, and all of the sugar beets have been planted.

The cows have now been on pasture since May 9. On account of the cold weather the grasses are growing very slowly. We have found that to date from pastures 1, 3, 4, 6a and 6b, containing a total of 2.54 acres, have furnished 28 cow-days of pasturing, whereas, the sweet clover, containing .34 acre, has furnished 22 cow-days of pasture. I must admit that the cows do not eat the sweet clover as rapidly as the grasses; it seems to satisfy them and they have not gone down in their milk to any extent. We are now beginning to switch the cows back and forth from the sweet clover to the grasses to see if the sweet clover will have any effect on the quantity of milk.

Truckee-Carson.

During the week ending May 13, the maximum temperature was



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Truckee-Carson (continued).

80; minimum temperature, 26.

The weather has been unseasonably cold with several heavy frosts which killed most of the fruit on the Project. Some fields of alfalfa were slightly damaged.

Foxtail was removed from the irrigation and drainage ditches and from all fields. The salt grass was hoed from among the trees in C6.

A fence was constructed around E3 with a division through the center. This plat will be used for the pigs which were on the sweet clover on E7. This change was made necessary because the pigs were making little or no gains on the sweet clover. Two cows will be pastured on the sweet clover on plats E6 and 7.

The following fields were irrigated:- C4, 5; D1 to 8, inc.; E4, 5, 7, 8; G1 to 5, inc.; H1 to 11, inc.

San Antonio.

During the week ending May 20, the maximum temperature was 90; minimum temperature, 54; greatest daily range, 37. Rain fell on three days; precipitation, 2.46 inches.

Because of rain and wet grounds, little field work was possible during the week. Lots and yards were cleaned.

On Friday, Messrs. Letteer and Meade made a trip to points in vicinity of Laverna and Elmandorf to secure seeds of Prunus texana hybrids. On the W. J. Stuart farm it was found that the original tree of this hybrid had been destroyed but that two three-year old trees grown from shoots from the original tree are now growing in Mr. Stuart's orchard. The hybrid trees on the Whiteker ranch were located and found to be in good condition.

Fruit from these trees ripened about May 1, so they had fallen to the ground and it was possible to secure only a few seeds.

Truckee-Carson.

During the week ending May 20, the maximum temperature was 75; minimum temperature, 28.

The following varieties of corn were planted in duplicate on the farm of T. V. Conner, on May 15:

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Truckee-Carson (continued).

<u>Varieties.</u>	<u>Source.</u>
Martin's White Dent	Office of Corn Investigations.
U. S. Selection 160	do.
Bloody Butcher x 160	do.
Wimples Yellow Dent	do.
Australian White Flint	do.
Selection 133	do.
Riverview Special	Dakota Improved Seed Co.
Minnesota 23	do.
Northwestern Dent	do.
Disco 85 Day	do.
Disco Pride	do.
Wimples Yellow Dent	do.
Minnesota King	Northrup King & Co.
Rustler White Dent	do.
Gold Medal	do.
Iowa Gold Mine	do.
Hartmanns Yellow Dent	do.
Pride of the North	do.
Cars Yellow Dent	Frank Oar, Fallon, Nevada.
Disco 90 Day	do.
Murdock	Dakota Improved Seed Co.
Minnesota 13	do.

The following fields were irrigated:- B-1, to 6, inclusive; Y-1 to 23, inclusive; G-1 to 5, inclusive; F-1 and 2; H-2, 3, 9, 10, 12, 13, 14, 21, 22, 23, 15, 16n, 17, 18, 19, 20; C-1 to 5, inclusive; D-1 to 8, inclusive; E-1 to 8, inclusive.

The pigs on the alfalfa pasture have continued to make fairly satisfactory gains, the average daily gain being 1.37%, and the daily net return per acre, 80 cents. The Durocs were somewhat undersized at the beginning of the experiment and they have made the smallest gains, the daily gain being .53%. The daily gains of the Berkshires and crosses were much better, 1.55% for the former and 1.49% for the latter.

The pigs on the sweet clover pasture made such small gains that they were moved May 13, after having been on the pasture 18 days. At the end of this period the Durocs and Berkshires were no heavier than at the beginning while the gains of the crosses and Baumann's pigs were small. The average daily gain of the lot was .51% with a daily net return per acre of 17 cents.



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Truckee-Carson (continued).

Result of Pasture Experiment with Pigs.

I t e m .	May 6 to May 20 14 days on alfalfa, Total.	April 25 to May 20 25 days on alfalfa, Total.	April 24 to May 13 18 days on sweet clover, Total.
Number of Pigs..	10	10	18
Initial weight, Lbs.....	321	262	598
Final weight, Lbs	367	367	655
Total gain, Lbs.	46	105	57
Daily gain, Lbs.	3.3	5.8	3.2
Daily gain, %	.97	1.37	.51
Barley fed, Lbs.	93.6	156.5	223.0
Cost of barley @ 1½¢.....	\$1.40	\$2.35	\$3.34
Value of gain @ 7¢.....	\$3.22	\$7.35	\$3.99
Net return.....	\$1.82	\$5.00	\$.65
Net return per acre.....	\$7.28	\$20.00	\$3.05
Daily net return per acre.....	\$.52	\$.80	\$.17

Yuma.

During the week ending May 20, the maximum temperature was 95; minimum temperature, 44; greatest daily range, 48. Thirty-four acres were irrigated.

The balance of border C-43 was planted to seedling date palms also date seed of the varieties Thoory and Deglet-Noor was planted in nursery rows in intervening spaces between palm rows on C-42.

Nurseries and truck crops were cultivated and hoed. The deciduous orchard, B-24 to 32, was furrowed and watered. Eucalyptus trees along the east and south roads were pruned of their low growth.

Several varieties of corn and Pearl millet were planted on B-19 and 20. Sudan grass for seed production was seeded on B-1 to 4 and Whippoorwill cowpeas for seed on B-5. Borders B-11 to 16 were seeded to Sudan grass that may be utilized as green manure. B-17 was planted to Jack beans.

It was necessary to go over cotton borders D-24, 25 and 26 to hoe out volunteered alfalfa.

A large acreage of alfalfa on the Project now being held for seed is in full bloom. At present date seed seems to be setting normally and prospects are good for an excellent crop. The first

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WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Yuma (continued).

early watermelons of the season are now being brought to market.

Mr. H. D. Smith left on Monday and Mr. H. R. Reed on Saturday for work with cotton and sorghum plantings at Chula Vista, California.

Belle Fourche.

During the week ending May 27, the maximum temperature was 74; minimum temperature, 37; precipitation, 1.23 inches.

The hogs in rotations 65 and 69 were weighed for the first ten-day period but no gains were made and due to the continuous wet weather it was necessary to shut them off the alfalfa. During the last three weeks it has been so wet and cold that all crops have been practically at a stand still.

The sheep were clipped during the week and averaged 14 pounds of wool each. The highest clip was 18 pounds and the lowest was 10 pounds. The sheep were turned on alfalfa pasture in field AII, 1-6, on Friday. It was thought best not to make the weighing until they had been on pasture for a few days so they would be in more normal condition. So far there has been no trouble from bloat.

The corn varieties were planted in field O, series V and VI in three replications of two rows each. The following varieties were used:

Many colored Squaw.	Australian white flint.	Early Huron.
Paynes white dent.	U. S. Selection.	Disco 85 day.
Gehu flint.	Martin's white dent.	Minnesota king.
Sooter's corn.	N. W. Dent x Disco white.	Dillman's corn.
	Disco 90 day.	

The following root crops were planted in PI-5-6; Mammoth long red, Golden tankard, Half sugar, and Stock carrot.

On the dry land the oats and barley had to be replanted in the variety test as they did not recover after the wind storm of May 10-11.

Work has been commenced on the new horse barn.

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FIELD NOTES.

Huntley.

During the week ending May 20, 11 farm visits were made, 2 calves were vaccinated against black leg, and 34 milk samples were tested in the office.

Mr. Perce, who has been appointed in charge of the new cheese factory at Ballantine for a time, reported for duty on Monday. The cheese factory association was not quite ready for business at that time, but it is probable that with Mr. Perce's assistance they will be ready to begin operations by June 1.

Truckee-Carson.

During the week ending May 20, 22 calls for assistance were received, and 12 farm visits were made.

The work for the past week has been considerably interfered with because the Government automobile has been laid up for repairs for two days. This has been the greatest length of time lost at one period since the car was put in service in November, 1914.

Considerable difficulty is being experienced now with retained placenta in dairy cattle. Much time has been spent in assisting the farmers and instructing them in the care of these cases. Since there seems to be a very general lack of information concerning the importance of prompt care and treatment for troubles of this nature, it is intended to issue a circular letter in the near future, setting forth a brief discussion of the subject, emphasizing the importance of prompt action and something of the methods of handling in case outside help is not available.

Boise.

During the week ending May 20, two suspected cases of cholera were reported. One proved to be the kidney and bladder trouble so commonly found last year; the other was not diagnosed, and may prove to be cholera.

A call was made on Tuesday for the purpose of vaccinating a few calves at the farm of Cecil Weeks, of Wilder, who had just sold his wool and bought a new automobile. Mr. Weeks fed about 4000 lambs last winter, shearing before shipping. His wool clip

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Field Notes.

Boise (continued).

was about 25,000 pounds, and sold for 30¢ per pound. Mr. Weeks' figures on his feeding and gains obtained will be available soon.

Considerable interest is being manifested in silos again, although it is still a little too early for many to be definitely decided upon, most men preferring to wait to see what the prospect for a corn crop will be before deciding to build. At this time there are six concrete silos in prospect on the Project.

The acreage of corn this year will apparently be considerably less than last year, partly on account of the unfavorable spring. Much interest is being shown in pastures and frequent inquiries regarding seed mixtures, etc., are received.

An interesting meeting of patrons and pupils of the Highline School occurred on Friday. On invitation, County Agent Williams and Mr. Ireland attended the meeting to discuss Boys' and Girls' Clubs for the purpose of encouraging club members before they separated for summer vacation. That district is much interested in sheep, and at the meeting a lamb club was organized, the first club of the kind in this part of the state.

A much needed rain fell in the Boise Valley on Thursday, the first of any consequence since early spring, and was very beneficial.

Uncompahgre.

During the week ending May 20, 10 farm visits were made, 3 calls for service received, 1 request for information given attention, 3 farmers called at the office, and 21 samples of milk were tested for butterfat. Arrangements were made with one farmer for regular testing of his herd each month.

The week has been taken up largely with dairy work. Aid was given one farmer in dehorning a calf with caustic potash and disinfecting a bull. Aid was also given in the selection of a pure bred Holstein sire. A visit was made to the farm of O. W. Lemmon, where there is a field of 11 acres of sugar peas, sown for hogging down in the fall. Arrangements were made to obtain weights and gains of the hogs while on this field. The seed for this crop was obtained in Idaho. The peas are making an excellent growth and are very vigorous.

Two carloads of hogs have been sent out cooperatively during the week. Prices have gone as high as \$9.90 on the Denver market this week. Some very well finished hogs are being sent from the Project points.

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Uncompahgre (continued).

During the week ending May 13, the Montrose Creamery manufactured 1500 pounds of butter. Prices of butter fat have gone down to 25¢ on the Project.

There is talk of starting a cheese factory at Delta, Colorado, the plan being to move the factory from Lazeer.

North Platte.

During the week ending May 13, 64 140-pound shoats were weighed on Mr. Broadbent's farm for a feeding test. The shoats will be fattened on alfalfa pasture with corn in self-feeder.

The two farms, on which colera occurred recently, were visited during the week. Fourteen choats out of seventy-eight on one farm have apparently recovered from the trouble. This herd was not vaccinated. All others have died. The other herd still has a few sick shoats. A part of this herd was vaccinated, though all but 22 of them had high fevers when the vaccinating was done. Twenty shoats were not vaccinated; all but two of these have died. None of the shoats that had normal temperatures when vaccinated have died. So far the trouble has not spread to other farms.

During the week a call to the farm of Mr. Hutchinson, Dutch Flatts, was answered. The trouble was sore mouth in his pigs, practically every one of his 110 spring pigs were affected. It seems that he had noticed sore mouth in a few of his pigs and decided to break off the tusks or black teeth with a pair of pliers so that they would not injure each other when fighting. This he did with the result that the gums of the pigs were injured or the teeth left rough which soon caused breaks in the skin about the mouth, through which the trouble started. He did not realize the importance of using a pair of regular nippers to clip off the black teeth. An effort will be made to try to save the pigs though it will be a hard job. The pigs' mouths were all washed out with a very strong solution of permanganate, using about one ounce of the crystals to 3/4-pint of water. This was applied with a small brush and the pigs were dipped. The treatment will be continued.

During the week ending May 20, several visits were made to the farm of Mr. Hutchinson to treat his 110 spring pigs for sore mouth. After using 3 applications of strong permanganate solution on the pigs' mouths at 2-day intervals the treatment was discontinued as it did not seem to stop the spread of the disease. Iodine is now being



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Field Notes.

North Platte (continued).

used. It is applied directly to the affected parts of the mouth. When the sore is deep the iodine is applied with a serum syringe thus forcing the iodine down into the affected tissue. Otherwise the iodine is applied with a brush. This latter treatment has been given 3 consecutive days this week and conditions are much improved. While it is considerable trouble to give this treatment it is thought that it is justifiable. The treatment will be continued every other day next week. Thus far only one pig has been lost. On Monday of this week Mr. Hobbick, of Melbeta, sold 2 dear loads of fat Poland China hogs (134 head) average weight 252 pounds, on the Denver market, for \$9.90 per cwt. This is the highest price paid for hogs on the Denver market for 5 or 6 years. The total receipts for these 2 cars was \$3,343.43.

Minidoka.

During the week ending May 13, another severe wind storm occurred, lasting all day Tuesday. This was followed by freezing weather, the thermometer dropping to 20.

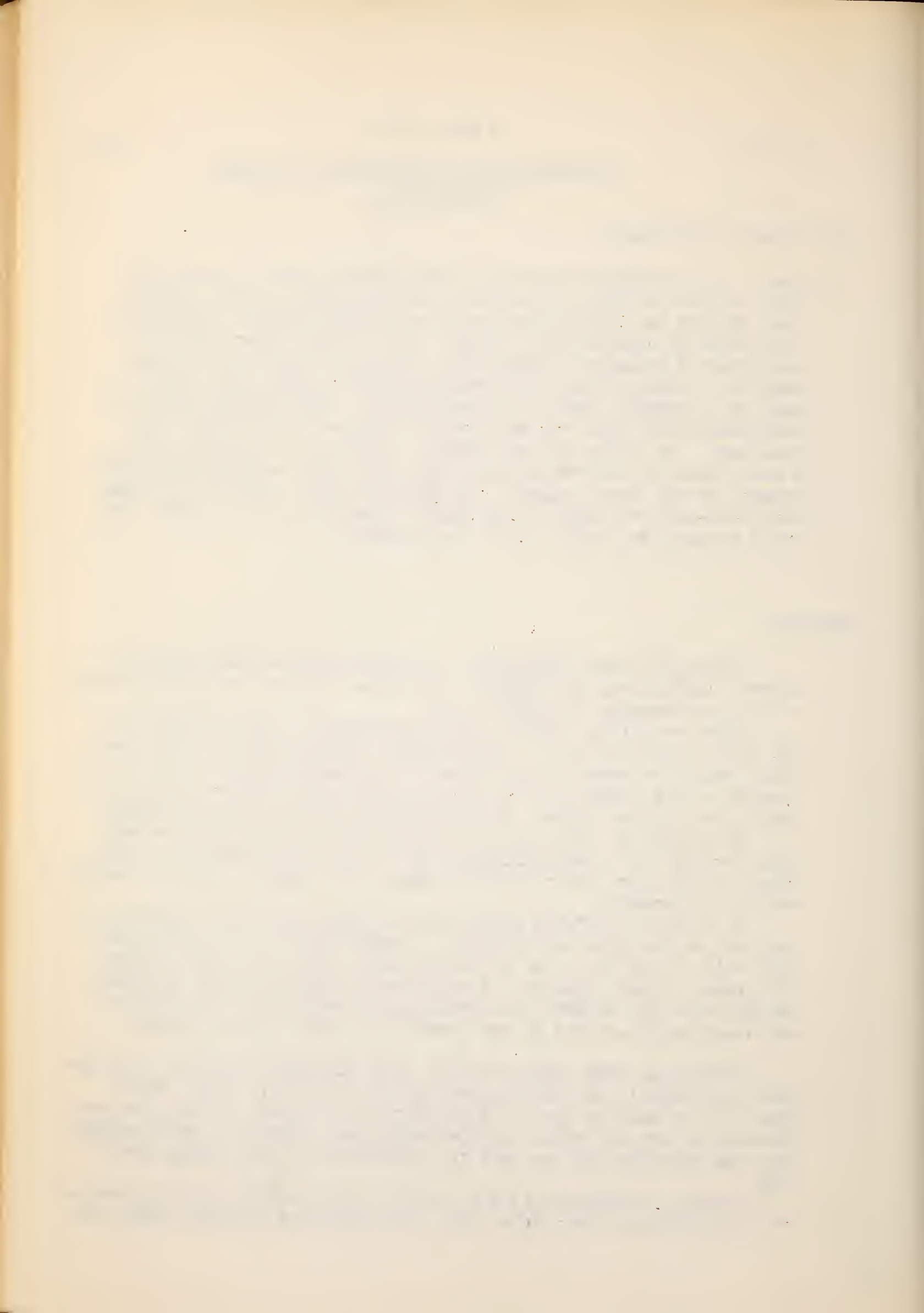
Boys' and girls' work is being undertaken in six districts on the North Side this year. The work was taken up only in those sections where the parents and teachers were anxious for it. The clubs consist of pig clubs, poultry clubs, garden and backyard clubs, and sewing and canning clubs. Each is looked after by a local advisor.

The output of the Acequia Cooperative Cheese Factory has more than doubled since the opening of the factory last November. 3400 pounds of milk are being received daily. The cheese is first classed and is sold readily.

At a pure bred Duroc Jersey sale at Ballard's farm competition was keen on the good individuals. A number of inferior pure breeds were sold, being bid in at but little more than the current prices for grades of this quality. The good pure breeds all sold at prices ranging from \$24 to \$35. The encouraging feature was the judgment and discrimination used by the farmers in selecting and buying.

During the week ending May 20, final meetings were held with the boys' and girls' clubs as the schools all closed on Friday. Meetings will be held at special times during the summer to suit the convenience of the advisors. In districts where there are local granges the club meetings will be held in connection with the grange meetings.

Permanent grounds have been secured and buildings will be erected for the Minidoka County Fair. The first fair was held last year for



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Minidoka (continued).

the purpose of displaying the best types of farm animals and the varieties of farm products that did best in this locality. The results were very gratifying and are much in evidence this year. The policy of having the fair mostly educational will be followed again this year.

The wind storm and freezing weather of last week did much damage to the Project. In the sandy districts the beets and grain were destroyed by the flying sand. In some places the sand drifted so that leveling will have to be done. Many of the beet fields will be replanted to potatoes. Where the fields had not been irrigated the alfalfa was frozen while the others were but slightly damaged. A number of the former fields have been clipped. The fruit was frozen.

The drought was broken by a rain on Thursday night and Friday morning. Total precipitation, 1.5 inches.

Butterfat is now 27¢. Fat hogs are \$7.60. Wheat is \$1.50 and barley \$1.35 per cwt. There is no hay for sale, the late spring having made a demand for what little was left over. Some wool has been sold at from 28 to 30 cents although most of the wool is yet unsold. A number of farm flocks are yet unsheared.

Shoshone.

During the week ending May 20, 16 farm visits were made; 14 calls were received, and one article written for the local papers.

LEAVE
Without Pay.

Applications for leave without pay should show the reason therefore, in accordance with Par. 86, of the Administrative Regulations, and as noted in the Weekly Bulletin of January 1, 1916.

CIRCULAR LETTERS.

Following is the text of a Memorandum to Heads of Offices, dated May 20, and signed by the Chief of Bureau:

"The rapidly increasing use of the mimeograph and flexotype for the distribution of circular letters, some of which practically amount to serial publication, necessitates the establishment of

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Field Notes.

Circular Letters (continued).

a means by which copies of these letters may be preserved for later reference. It is also desired that these letters receive sufficient administrative attention to avoid the possibility of their interfering in any way with the usual policies of the Bureau.

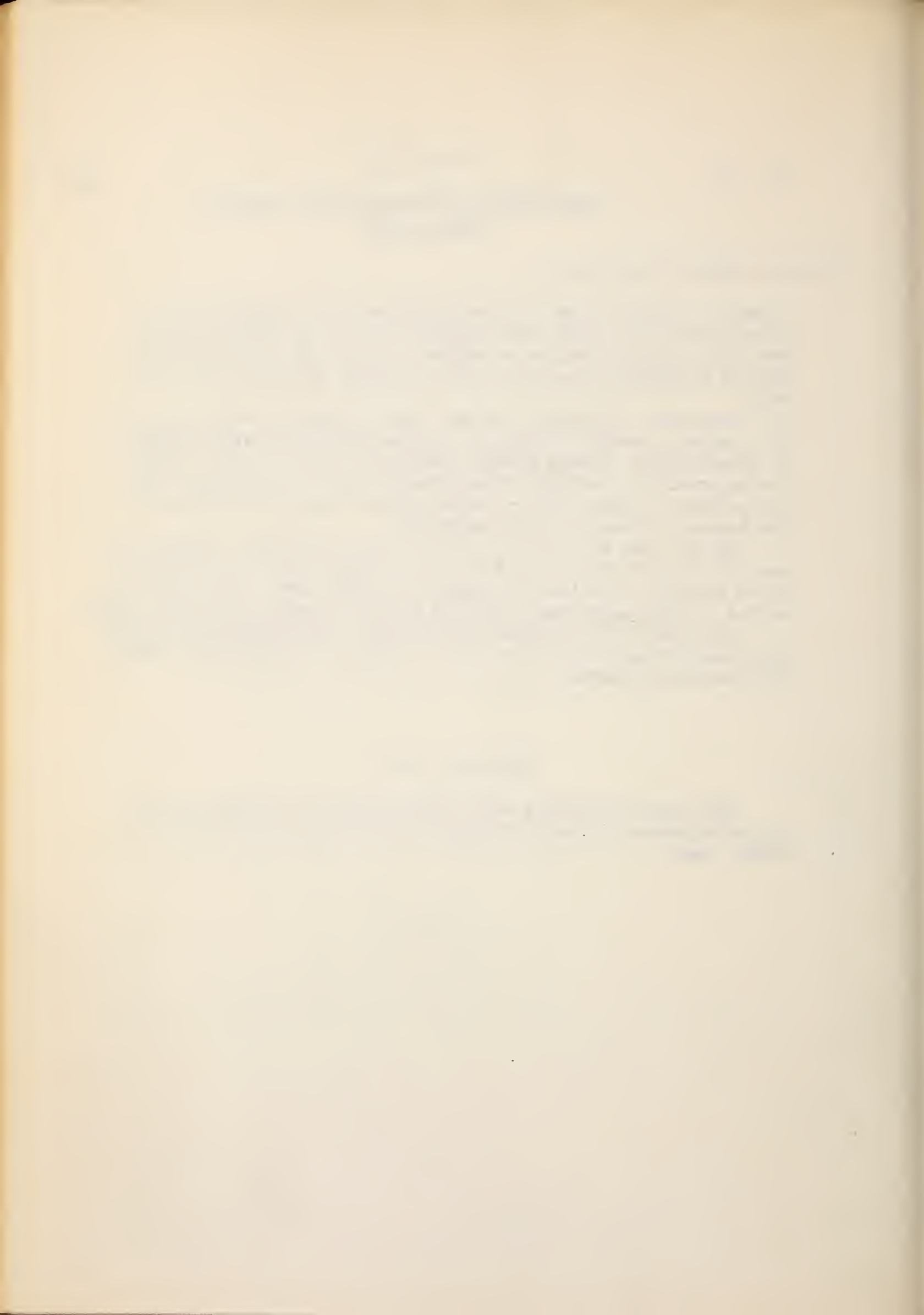
Hereafter, therefore, before having circular letters, office letters, weekly bulletins, or other circular matter printed or mimeographed, please forward manuscript copy or proof sheets for approval by the Chief or Assistant Chief of the Bureau, and at the time of actual distribution please forward two copies to the Bureau of Plant Industry Library."

It has been decided that in the case of circular letters issued from field offices it will not be practicable to secure advance approval; but that the purposes of the above order will be served if two copies are forwarded immediately for the Bureau files.

Field men will therefore be governed accordingly and with the copy usually sent in for our files include two additional copies for the Bureau Library.

ESTIMATES, 1917.

Farm Superintendents will please submit as promptly as possible estimates of their probable fiscal requirements for the coming year.



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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

Scottsbluff.

For the week ending May 27, Mr. Knorr reports as follows:

During the week alfalfa and flax were seeded on field K, and the potato varieties were planted on field H, series I and II. The rest of the time was devoted to odd jobs.

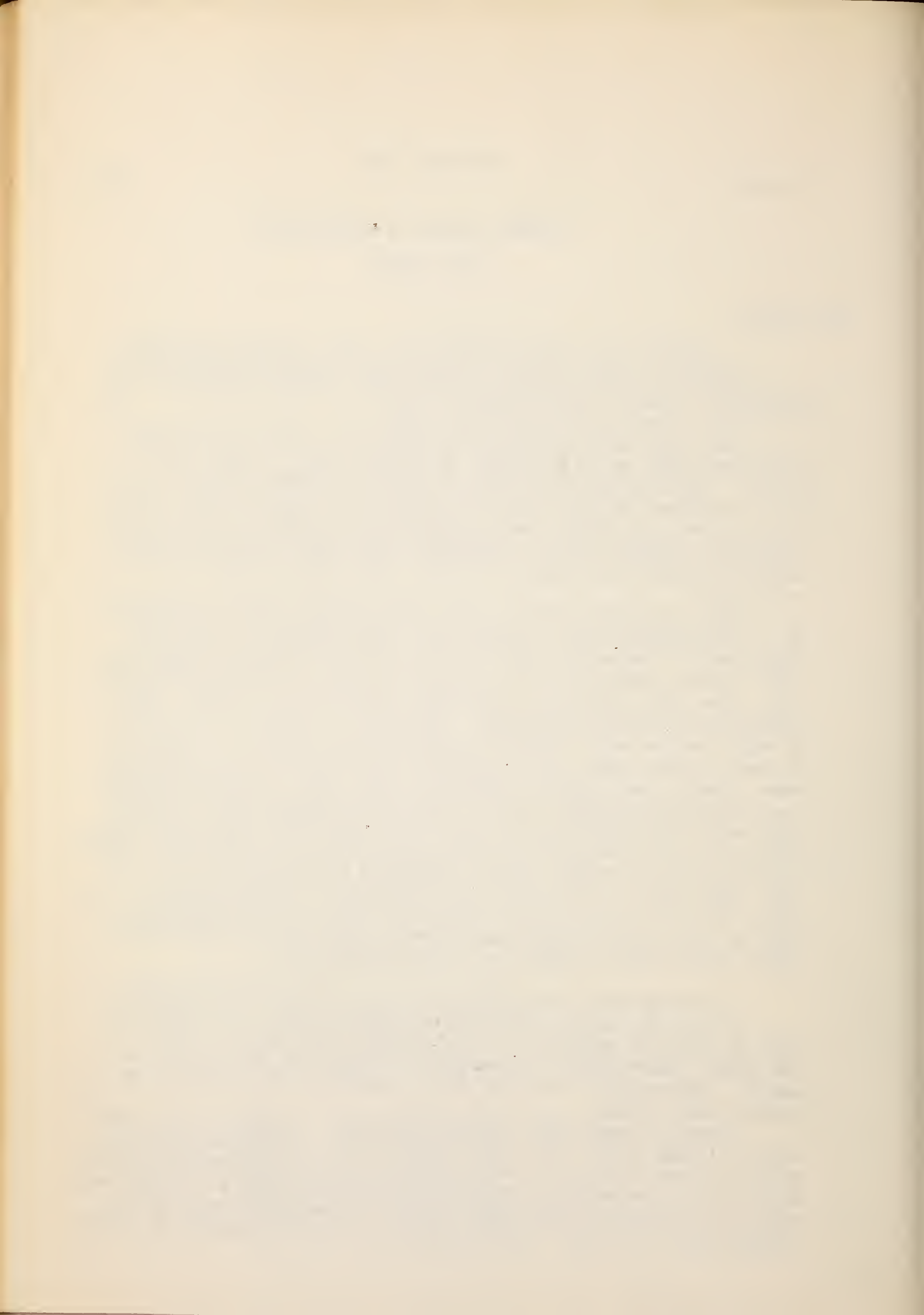
Some soil had to be hauled on field K in order to raise the blown-out roads, so as to enable us to get water to some of the plats. The same had to be done on field A, between series III and IV. On account of the light soil on this farm and the open roads that we have to maintain, we are beginning to create a very serious condition, namely, that of lowering of the roads to such an extent that the irrigation of plats will, in a few years' time, be an impossibility.

Some interesting results have been secured from our pastures up to the present time. We have run 4 milk cows on our pastures since May 9. The sweet clover pasture, which contains an area of .34 acre, has furnished up to May 27 a total of 34 cow pasturing days. The grass mixtures, containing a total of 3.54 acres, have furnished 40 cow pasturing days. The grass is eaten off just about as short as the sweet clover, perhaps a little more so. The boys on the farm were under the impression that the cows were eating the sweet clover just enough to satisfy a scant want. We have switched the cows from the sweet clover to the grass pastures and estimated their milk flow while on these pastures, allowing in each case two full days to become adjusted to new conditions. We found that changing from grass to sweet clover resulted in a falling off of 7.7 per cent. milk, while on the other hand, changing from sweet clover to grass there was a falling off of 6.2 per cent. in the milk flow. It will be seen that this falling off in the milk flow in changing to sweet clover was not much above normal falling off.

For the week ending June 3, Mr. Knorr reports as follows:

During the week a considerable time was put in in placing cement in the ditch between the hog houses and the machine shed. A few cement checks were constructed on field A, between series III and IV. Several men were kept busy cleaning out the weeds on the roads between plats.

After our heavy wind storms during May it appeared for a short time as though some of the small grains would recover sufficiently to make a good stand, but during the past week the scattering plants that were not destroyed by the wind dried up and left in a great many places in our grain fields large areas of bare ground and some re-seeding had to be done. Practically all of the oats on the dry land



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Field Notes.

Scottsbluff (continued).

had to be reseeded; also, some of the barley.

On the night of May 31, we had a light shower; this was accompanied by some hail which did a slight damage. On the following night we had some more rain and a rather destructive hail storm. This storm struck with greatest severity northeast of the farm, in the same area as the heavy hail last year. The storm traveled in a southeasterly direction, crossing the farm, and cutting the alfalfa quite badly, injuring the corn to such an extent that the following morning only about one-half the stand remained on the ground; this, we believe will pull through. The sugar beets are just coming through the ground; these were beaten up very badly. Many of the farmers are cutting their alfalfa as the hail damaged it to such an extent that cutting is necessary. On the Farm the alfalfa is not very badly damaged, although we believe that about 15 or 20 per cent. has been cut off by the hail.

On account of the continued cold weather none of the crops are making any headway. Indications are that we will have to take the cows off the pastures and put them into the corral and hay-feed them until the pastures recover.

Belle Fourche.

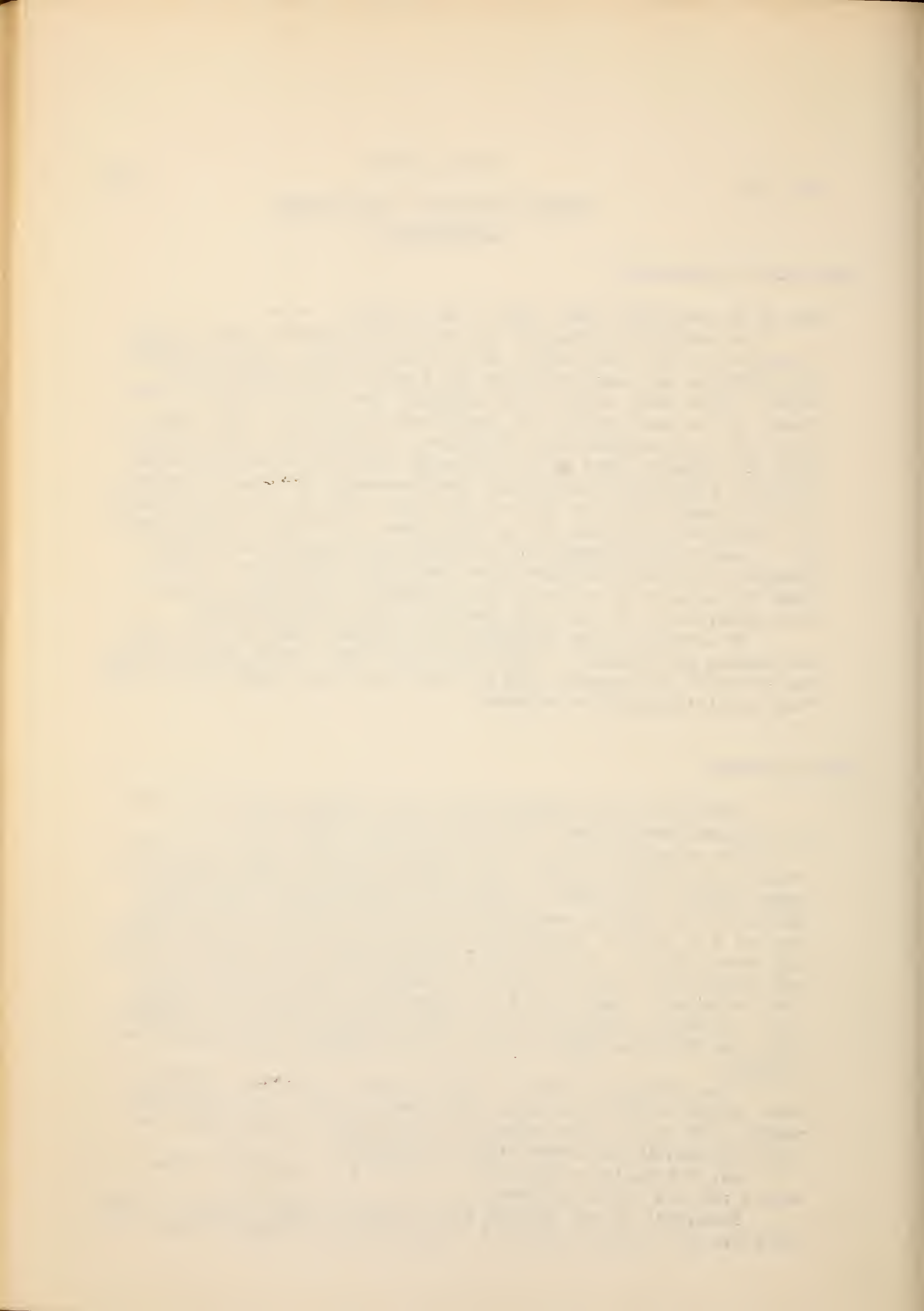
During the week ending June 3, the maximum temperature was 81; minimum temperature, 41; precipitation, .28 inch.

The sheep that were turned on the alfalfa in A-II-1-6 were weighed on the 29th of May. The total weight was 1400 pounds; average weight, 140 pounds. Thirty-four spring pigs were weighed and turned on alfalfa pasture in field K on June 2. These pigs are fed a 3% ration, consisting of 1/3 corn, 1/3 ground oats, and 1/3 ground wheat. On May 26, 7 yearling sows were turned on this same pasture and fed a 1 per cent. ration of equal parts ground oats and wheat. When turned on, these sows averaged 200 pounds each. There are about 5 acres in this pasture which is considerably more than the hogs can use, but the surplus feed will be cut for hay.

The portion of field K that is above the ditch, seeded to brome grass in 1914, has been fenced and on June 3 one cow (dry), weight 1160 pounds, was turned on this pasture to determine the carrying capacity of brome grass on dry land.

All the roads in fields B, C, D, E, F, O and P have been marked out and partly cleaned.

Rotations 40 and 42 have been damaged to some extent by seepage from the townsite lateral. A tile drain is being put in.



DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

Uncompahgre.

During the week ending May 27, 15 farm visits were made, 22 samples of milk and cream were tested for butterfat, 3 requests for service and information received, and one new hog feeding test was begun.

On Tuesday a visit was made to the Loesch farm with a number of the Montrose and Delta Business men who went there for the purpose of seeing the pure bred Holsteins. There were 20 men in the party.

The greater part of the week was spent in visiting new farms and in getting acquainted with new territory on the Project.

During a very strong wind two silos were blown down because of poor anchoring.

The cooperative hog shipments are continuing from points on the Project. The Montrose Grange cooperative association has been handling a large number of hogs for the farmers. This Association, although they carry the Grange man, is a private concern. They notify the farmers when a shipment is to be made and look after the arrangements for a one per cent. commission. This plan is giving very good satisfaction as the farmers who have only a few head are thus enabled to sell their hogs to a better advantage.

Hogs are bringing the farmers around \$8.75 per cwt. on the Project. Several shipments have been made to Denver for 77¢ per cwt.

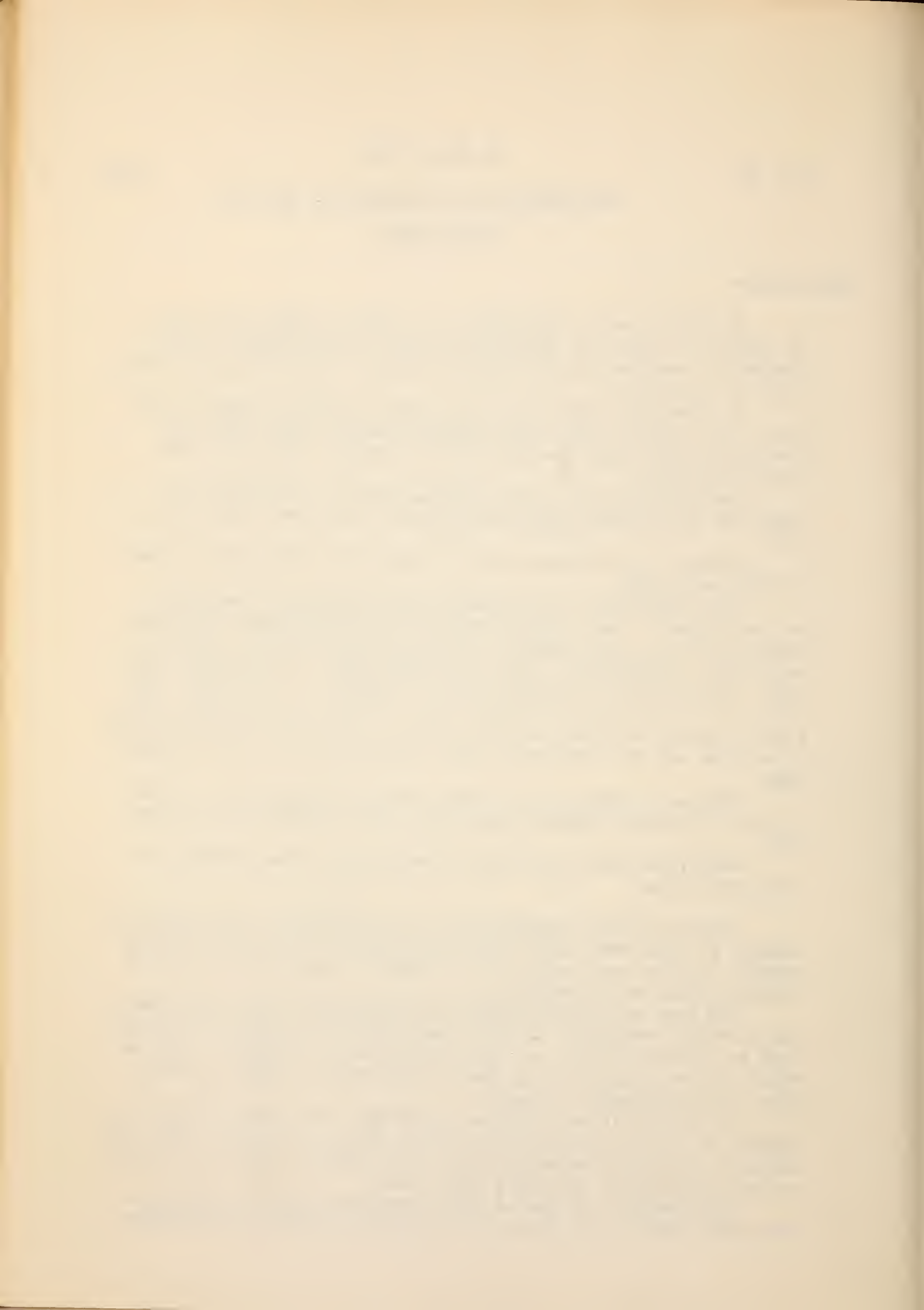
Butterfat prices are 25¢ for best grade cream and 23¢ for low grade cream.

During the week ending June 3, 17 farm visits were made, 28 samples of milk were tested for butterfat (this included 4 dairy herds), 6 calls for service and information were received, and 2 farmers called at the office.

One test in finishing hogs was started during the week and one test was completed. A lot of hogs (22 in number) were run 33 days on alfalfa pasture and corn was fed as a supplement. The amount of corn fed was 1.6 pounds. 100 pounds of gain was realized from 228 pounds of grain.

On account of cool weather conditions the first cutting of alfalfa on most of the Project will be short. A severe frost the middle of the month injured some of the fields. Some of the farmers are starting to cut their first crop.

Considerable trouble is being reported from the rotting of the potato seed in the ground. The matter was taken up with the



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Field Notes.

Uncompahgre (continued).

College at Fort Collins and trouble is said to be Rhizoctonia.

One of the Holstein heifers, grade, imported from Utah in April freshened the latter part of April. She produced 1200 pounds of milk the first month and 55 pounds of butterfat. She is 3 years old and this is her first calf.

Butterfat prices are 25¢ at present. Hogs are down to 9.10 per cwt. at Denver. There are still a number of farmers who have hogs to market.

Tieton.

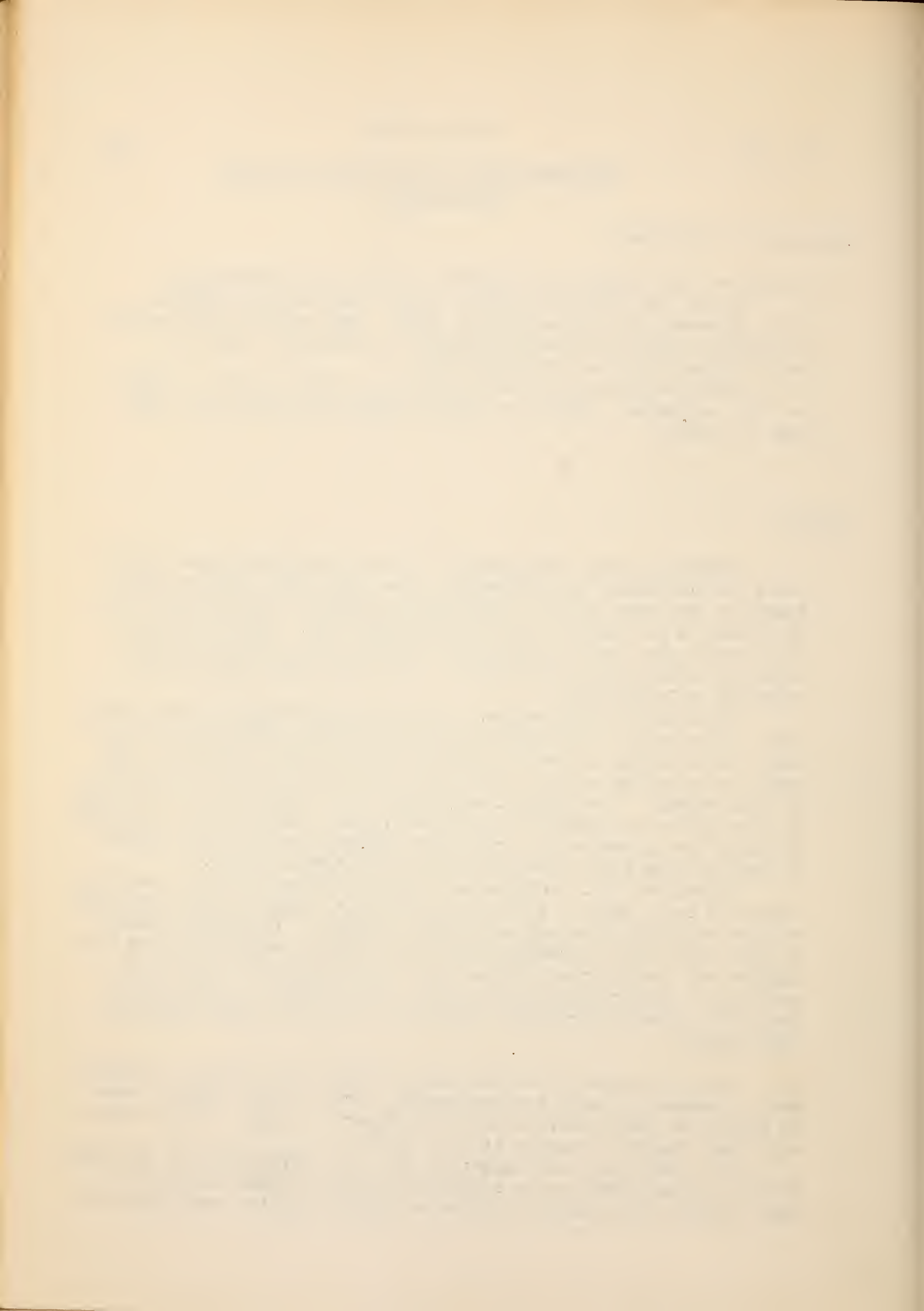
During the week ending May 6, 19 farm visits were made and 10 calls for assistance were answered. Two farms were visited with a farmer to buy cows and two cows were purchased. One farm was visited to help a boy select a sow for pig club work. Only 4 office conferences were had with farmers. One farm was visited in regard to a pig feeding demonstration, and two farm visits were made in regard to silo building.

The spring is opening very slowly and although the small grains show a fair growth they compare very unfavorably with this time last year. Practically no corn is planted although many fields are prepared for planting and the corn will be put in as soon as the weather turns warmer. The alfalfa crop looks very light, much of the crop looking yellow and making a very slow growth. Alfalfa hay is extremely scarce and a number of farmers are buying baled hay from dealers in town at from \$22 to \$24 per ton for their work horses.

Prices for farm products are unchanged from last week and very little is being moved. Potato growers are cleaning out the last pits and the principal movement is in seed potatoes. The potato growers of the county held a meeting recently to discuss methods of seed fumigation and disinfection with a view of improving the quality and quantity of commercial and home grown seed potatoes. This is evidently the first concentrated attempt of this kind among Yakima potato growers.

During the week ending May 13, 26 farms were visited, 6 visits were in answer to calls for assistance, 4 were to test milk, 4 were in regard to dairy records, and 16 in regard to silos. Nine conferences were had with farmers at the office.

Mr. Lashbrook, field agent of the U. S. Dairy Division and State College, spent five days in cooperative work on silos and dairy records. Four of the farmers visited in regard to silos have placed or-



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Field Notes.

Tieton (continued).

ders with a patent stave silo firm for silos to be erected this summer. Six of the others have expressed their determination to build homemade silos this season. Of the six, one prefers to build the concrete silo, one a modified Wisconsin, and the others favor the home made 2x6 inch stave. The outlook for a good increase in the silos on the Project is very good and will undoubtedly improve if the price of alfalfa hay is as good as it was in 1915, when it averaged \$7.50 per ton, on the farms.

The new Cowichee Creamery and Cheese factory has made a good start during the past two weeks. They are now making about 200 pounds of cheese per day and from 150 to 200 pounds of butter per week. They are paying 28 cents for butter fat in cream and the Yakima creameries are paying 26 cents on the routes or 29 cents delivered. The Cowichee firm is paying 33 cents for butter fat in whole milk. One of the most welcome features about the advent of the Cowichee firm is that it is making the first honest attempt to refuse poor quality cream. Most of the cream they are using is collected daily, either along their whole milk routes or by the Ford trucks in the afternoons after the cheese is in the press and a man can be spared from the factory for a trip. The cold, backward spring has had much to do with assisting the farmers to cool their milk and cream rapidly, and a number of farms are now equipped with water tanks for coolers. The creamery is beginning to insist upon water cooling whenever there is suspicion of lack of proper cooling otherwise.

Local hay dealers are importing hay from Idaho, it being impossible to supply the trade locally. The Idaho hay costs about \$22 per ton, f. o. b. Yakima, and is retailing at \$24.50. The price of potatoes advanced \$1 per ton, due, it is reported, to a movement of Yakima Valley potatoes eastward. Live stock and grain markets are as they were two weeks ago.

During the week ending May 20, 17 farms were visited, and 6 office conferences were had with farmers. Four calls were received, 1 of which was answered by a visit, and the others by phone. Silos were discussed with 7 farmers and pig feeding was discussed with three. One afternoon was spent at the U. S. R. S. farm helping plant the acre breeding plot of pure bred corn. One pig feeding demonstration was started with pigs on alfalfa pasture and grain.

Mr. Farrel spent three days on the Project during the week. Six farms were visited with Mr. Farrell.

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Field Notes.

Tieton (continued).

The following prices for farm products were gathered from dealers on May 20. The Yakima City creameries are paying 26 cents for butterfat on the route. Two of them are paying 29 cents for 30 per cent cream delivered at the creamery, and the third pays 29 cents regardless of the test or condition. The Cowichee Creamery is paying 28 cents for butterfat in cream on the route and 33 cents for butter fat in whole milk for cheese making.

There is no wheat for sale in the Yakima Valley but coast quotations would make Blue Stem wheat worth 92 cents on board cars here. Barley is bringing the farmers \$30 per ton; oats, \$27; corn, \$33. Shorts are selling at \$26.50 and bran at \$24.50.

Boise.

Rains have interfered with field work to some extent during the week ending May 27, but have probably been more appreciated and more beneficial than work that might have been done if the rains had not come.

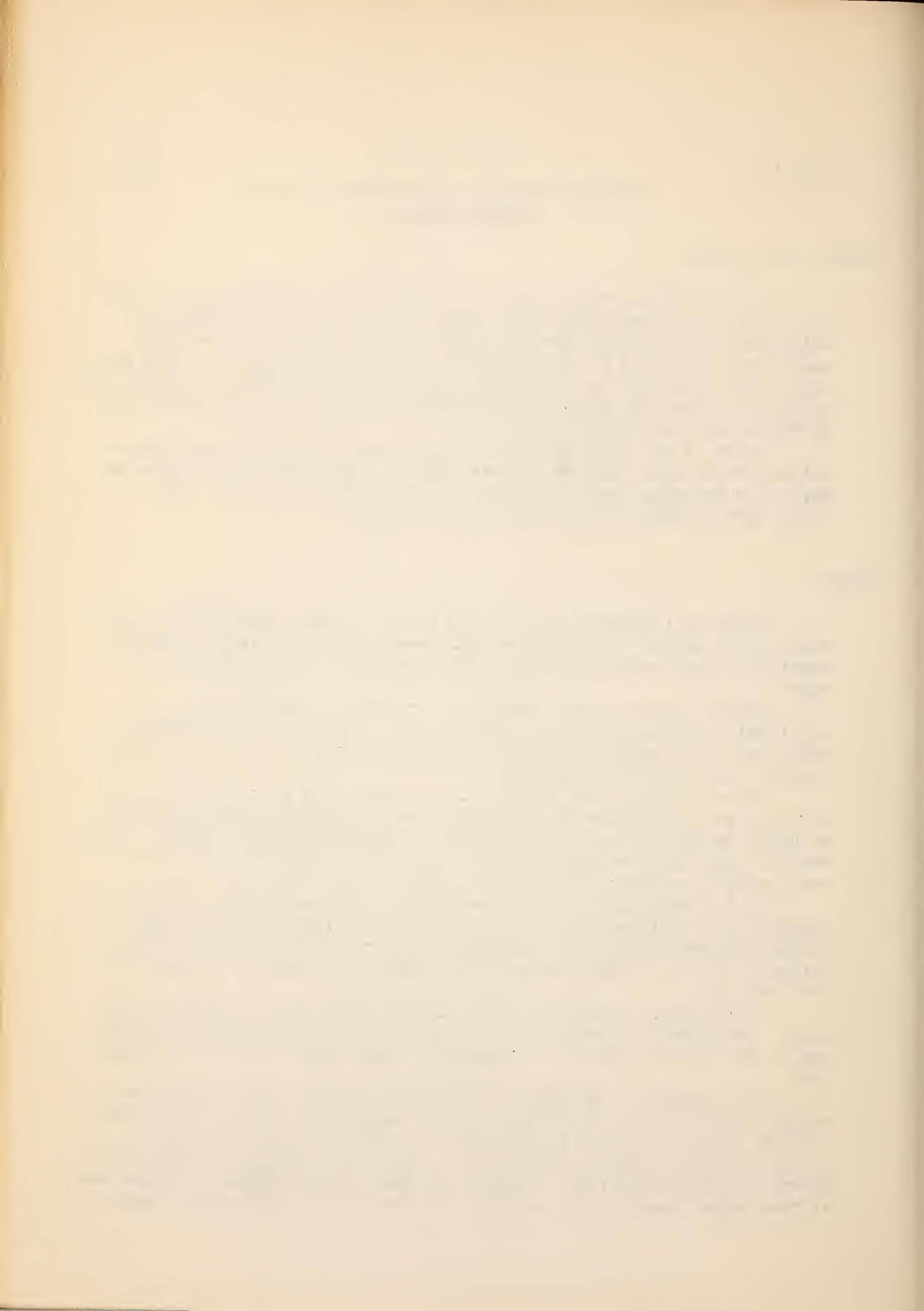
Weather has not been favorable for crops, however, as it has continued cold and nothing is growing well. Pastures are failing to carry the usual number of stock on this account and are not in nearly as good condition as a year ago.

Three meetings have been held this week. On Tuesday night, following a suspected case of hog cholera, a meeting was held at Huston, at which 38 persons were present and an organization was formed. There are not many hogs in that district and the attendance and interest were good in consideration of that fact.

On Saturday night, at Pleasant View, which is off the Project, County Agent Williams held a meeting for the purpose of discussing the hog cholera situation and proposing an organization for cholera control. Only 12 farmers were present although interest in this subject was good.

On Thursday a meeting of the pig and lamb clubs of Highline was held. On account of rain only a few were present and another meeting was called for next week. A meeting of Kuna clubs was also arranged for.

Mr. Stinson, a dairyman of the Boise Project, has recently returned from a trip to the Owyhee Range country south of the Snake River. He reports that the range there is rapidly being destroyed by sheep or by sheep owners who burn the range and timber to promote the growth of weeds and brush. During the past winter, resident stock-owners in the Owyhee country lost heavily, according to Dr. Stinson's report,



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DEMONSTRATIONS ON RECLAMATION PROJECTS.

Boise (continued).

on account of the long continued depth of snow and scarcity of feed. In consequence, these men are interested in securing winter quarters and feed in the Snake and Boise Valleys, where there are straw stacks, corn-stalk fields, and other rough feeds which could be obtained at a very low cost. A number of Project farmers have expressed themselves as willing to give any surplus roughage they might have to anyone who would feed it on their places so that there seems to be a good chance to make some arrangement to the mutual advantage of Project farmers and Owyhee settlers.

Four calls to inspect hogs have been received this week but none of these cases proved to be any infectious trouble. At present there is no cholera on the Project as far as known, all the former cases having been checked.

FURNITURE,
Purchase of

Field men will please take notice that their operating authorizations for the fiscal year 1917 contain a clause specifically limiting their purchase of furniture to the standardized type, as listed in the schedule of the General Supply Committee. This, of course, applies also to filing equipment of all kinds.



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WESTERN IRRIGATION AGRICULTURE.

FIELD NOTES.

San Antonio.

During the week ending May 27, the maximum temperature was 97; minimum temperature, 54; greatest daily range, 37. Rain fell on two days; precipitation amounted to 1.10 inches.

Field peas in orchard A1 were pulled and stacked to await threshing.

All cotton was thinned during the week, the plants being left as nearly eight inches as possible. The basis for judging the proper time of thinning was the leaf lobing. Records secured by the office of Crop Acclimatization during 1915 indicate that fruiting branches of the cotton plant never develop before three-lobed leaves are produced. In Upland cotton at San Antonio fruiting branches are formed soon after the appearance of the first three-lobed leaves. When three-lobed leaves became noticeable this season the plants were thinned to allow normal development of the fruiting branches. This method of determining the proper condition of the plants is the best indicator yet considered. Regardless of whether plants develop rapidly or slowly and produce long or short internodes, the fruiting branch development follows closely the production of the three-lobed leaves. Plants at thinning time ranged from 6 to 12 inches high, depending on the conditions of soil under which they developed, but the leaf lobing from all appearances was about the same on all plats.

All cotton, corn and milo was cultivated. Corn is tasseling and is in perfect condition at present.

Mr. C. H. Clark was at the farm for three days studying the flax plantings. Mr. Clark considers the showing made by flax this year very satisfactory, and plans to conduct further tests and studies next winter.

Huntley.

During the week ending June 3, the maximum temperature was 75; minimum temperature, 37; precipitation, .13 inch.

Weather continued rather cool during the week. Crops are starting well and in most cases there are good stands, although the season is fully two weeks late.

The following six varieties of corn for silage were planted in duplicate on one-quarter acre plats in field A-IV.

Northwestern Dent, Australian White Flint, U. S. Selection #133, Eiker's Yellow Dent, Martins White Dent, Minnesota #13.

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

Northwestern Dent corn was planted in fields B-II and III in the plat variation test.

A good stand of all the pasture grasses and clovers has been secured in fields L I, II and III.

A trip was made to Powell, Wyoming, in company with Mr. Farrell, in connection with the planting of pasture grasses in a number of test plats on several farms on the Shoshone Project. The planting of these grasses was just completed in most cases, and as a rule this work appeared to have been done in good shape.

Mr. Farrell was at the farm three days during the latter part of the week.

Report on Irrigated Rotations.

Roadways and alleys were hoed in fields K and L-IV. The headlands of all plats were plowed.

Carrion beetles and their larvae, the slug, have been found on several of the beet plats and along the edges of field K. A poisoned bran mixture, consisting of 50 lbs. bran, 2 quarts of molasses, 2 lbs. paris green, and 1 lbs. of table salt, was applied wherever the insects were found. This mixture was scattered broadcast over the infested areas, and one application proved effective in destroying practically all the young and adult beetles.

Table I shows the gains made by fall pigs on alfalfa pasture:
Table I- Fall pigs-Alfalfa pasture-Rotation 67.

No. of hog.	No. of days	Initial weight	Final weight	Av. daily gain	% Daily gain
51	10	135	143	.8	.60
52	10	123	132	.9	.71
53	10	124	132	.8	.63
54	10	128	139	1.1	.82
55	10	127	133	.6	.50
Total	--	637	679	4.2	--
Average	10	127	136	.8	.68
Lbs. grain per lb. gain.....					3.03
Lbs. corn consumed.....					127.4

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

The gains made by the sheep on grass pasture in field B-V are shown in table II.

Table II- Five ewes and five lambs, one-half acre pasture grass mixture.

No. of sheep	No. of days	Initial weight	Final weight	Average daily gain
66	25	125	131	.24
68	25	146	150	.16
70	25	125	125	.00
72	25	164	169	.20
74	25	119	123	.16
Total		679	698	.96
Average		136	140	.19
67	25	77	84	.28
69	25	70	83	.52
71	25	75	87	.48
73	25	82	104	.88
75	25	71	81	.40
Total		375	439	2.56
Average		75	88	.51

The heifer on a one-half acre pasture in field BV weighed 846 lbs. when placed on the plat. On June 1, or the twenty-fourth day on the pasture, she weighed 860 lbs.

Cool weather has checked the growth of the pasture, and on this account the ten head of sheep were transferred to the plat occupied by the heifer for three days (May 29 to June 1). The supply of pasture on this plat was adequate for both the heifer and the sheep for the three days.

Scottsbluff.

For the week ending June 10, Mr. Knorr reports as follows:

The weather is beginning to become extremely dry. Three men have been busy irrigating all week. First of next week another man will be put on irrigating, and we hope to get over our crops as rapidly as possible. Our spring seeding of grasses, alfalfa and

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff (continued).

sweet clover are beginning to suffer considerably from the drought, but as the young plants are so very small it is almost impossible to irrigate, as these young plants are swamped very easily.

All of the corn and potatoes were cultivated during the week. It was found necessary to reseed the oats in field K. We were in hopes that enough of a stand would pull through that reseeding would not have been necessary, but it seemed that the plants continued to dry out and dwindle away until the ground was completely bare in places.

The pastures are growing very slowly; the cows now have been off these pastures for more than a week, and it is impossible to say when the grasses will recover sufficiently to again put the cows on them. They are receiving a third irrigation this spring, but on account of the cool nights there has been very little or no growth.

Dairy Report of the Scottsbluff Experiment Farm for the
Month of May.

In the Weekly Bulletin of June 10, a report is made on the difference in yields of milk production of cows on sweet clover as compared with pasture grasses. It would be very interesting to continue these comparisons, but on account of the limited area of sweet clover and the slow growth of the grasses this year, it was impossible to continue this work. All indications are, however, that the sweet clover pasture is equal to grass in milk production and furnishes a greater abundance of feed.

The following is a report of the dairy work for the month of May:

The cost of production can not be figured, as we cannot set a price on the valuation of the pastures. The cows were kept in the dry lot for ten days during the month of May. They were turned out on the pastures on May 9, and they were taken off the pasture one day on account of the snow storm.

B u t t e r F a t					Value hay	Cotton seed meal Value	Corn meal Value
Lbs. Milk	Av. test	Total Pounds	Market price	Value of			
MABEL							
917.58	3.4	31.19	26.5¢	\$8.26	88¢	62¢	18¢
ROSE							
478.45	4.6	22.00	26.5	5.83	88¢	46¢	10¢
MARIE							
929.05	3.3	30.65	26.5	8.12	88¢	62¢	18¢
MAUD							
917.58	4.4	40.37	26.5	10.69	88¢	62¢	18¢



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Scottsbluff (continued).

In the table on the preceding page, hay is figured at \$5.00 per ton; stover at \$1.00 per ton; cotton seed meal at \$47.00 per ton, and corn meal at \$1.00 per cwt.

Skim Milk.

	Total pounds	Value	Total Value
Mabel...	779.94	25¢	\$1.95
Rose....	406.68	25¢	1.02
Marie...	789.70	25¢	1.97
Maud....	779.94	25¢	1.95

Umatilla.

During the week ending May 27, the maximum temperature was 74; minimum temperature, 35; precipitation, .06 inch.

The routine work of irrigating the various fields and irrigation plats was followed without interruption. Replanting feterita in the period of irrigation experiment, and also in soil fertility experiment No. 5, became necessary on account of injury from the wind.

Mr. Farrell visited the station during the week, spending several days here and about the neighboring country.

During the week ending June 3, the maximum temperature was 86; minimum temperature, 38.

The first cutting of alfalfa hay was made on a number of fields. The crop will be rather light owing to the prevalence of cool weather. The price of hay throughout the country is higher than usual, being \$8 as compared with \$7 paid heretofore. This is resulting in a stimulation of sales at this season.

As a result of the study that has been made of methods of applying irrigation, together with results obtained from moisture determinations and other factors influencing the economy of water and labor in irrigating the characteristic sandy soils of this region, it has been determined that the use of borders is one of the most effective methods. Where the topography of the land is such that long sloping strips, level in cross section, can be made without an excess of labor, and without the use of large and steep intervening ridges the method is highly preferable to any other method for general use.

The following table gives the amount of water applied per irri-



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Umatilla (continued).

gation to irrigate effectively borders of varying length. The test was planned to give a working idea of the length of border, having a moderate slope, that can be irrigated to best advantage on a medium sandy soil.

Amount of water, depth in feet, applied to borders of varying lengths during April and May. All are 22 feet wide, and of uniform slope.

<u>Date</u> <u>Irrigated.</u>	<u>A</u> <u>100 ft. long.</u>	<u>B</u> <u>175 feet long.</u>	<u>C</u> <u>250 ft. long.</u>
April 8	5.20	6.25	8.09
13	3.63	4.32	3.42
27	3.60	3.08	7.19
May 5	2.85	2.53	5.02
11	3.07	3.76	5.08
18	2.77	2.76	4.99
25	2.64	2.53	4.28
June 1	<u>2.96</u>	<u>3.13</u>	<u>4.72</u>
Average	3.34	3.52	5.36

From the above it is strongly indicated that the 175 ft. border can be irrigated with practically the same degree of economy as the one that is 100 ft. in length, but much more water is required to cover the 250 ft. strip.

As yet no determinations have been made upon the relation of size of head of water used to the amount required to cover borders differing in length.

Mr. N. R. Moore, secretary of the Board of Regents of the Oregon Agricultural College, visited the Station May 29.

During the week ending June 10, the maximum temperature was 84; minimum temperature, 40.

Clover in A4, soil fertility experiment No. 3, was cut.

Corn was again planted in Cla, soil fertility experiment No. 1, as a summer crop. It was planted June 8, somewhat later than usual.

Portions of the feterita in D4 was reseeded the second time. Owing to the persistence of severe winds the plants on part of this land are suffering severe injury.

The first crop yield of alfalfa from this experiment was prac-



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Umatilla (continued).

tically 2-1/8 times as heavy from the plants receiving manure at the rate of 8 tons per acre as from those receiving no manure. The yield of the land receiving 32 loads of manure was 2-1/2 times as great as from that which was not fertilized. The indications, therefore, are similar to those received last season and show that the liberal use of manure is very beneficial to alfalfa, but maximum applications are of much lower value in proportion to the amount of fertilizer applied.

San Antonio.

During the week ending June 10, the maximum temperature was 103; minimum temperature, 65; greatest daily range, 32. Extremely warm and dry weather has prevailed during the past two weeks. There has been no precipitation since May 22, and all crops, except cotton, have suffered severely from drought during the past ten days.

Corn on the rotation plats shows considerable variation in condition as a result of the difference in time of plowing preceding the corn crop. Corn on plats which were plowed early, as in June after oats, is still in good condition and has shown no firing whatever. This corn is well loaded with ears of good size. Corn on plats plowed in November, as after cotton is very severely injured already, and is badly fired. Ears are very scattering and on these plats are of small size. The marked differences in the corn under these conditions seems to be due to the time of plowing rather than crop sequence, as the corn on one plat where oat land was plowed in November is in about the same condition as the corn on cotton land plowed in November. Apparently there will be a wide difference in the yield of corn under these two conditions this season. The difference in corn plats due to time of preparation is much more marked than at any time during the preceding four years.

Weeding of all rotation plats and of all cotton on the remainder of the farm has been accomplished during the past two weeks. The remainder of the oats were cut and oats for hay were hauled in. Plowing of oat plats was started and the following plats were plowed: A5-3 and 6; A6-6 and 7; B4-17 and B5-7. Plowing of oat stubble on field C6 was started. In spite of the general condition of drought, oat stubble is in excellent condition for plowing.

Mr. P. V. Cardon arrived at the station on Tuesday and remained for the remainder of the week.



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Belle Fourche.

During the week ending June 10, the maximum temperature was 80; minimum temperature, 42; precipitation, .18 inch.

Seed Distribution in 1916.

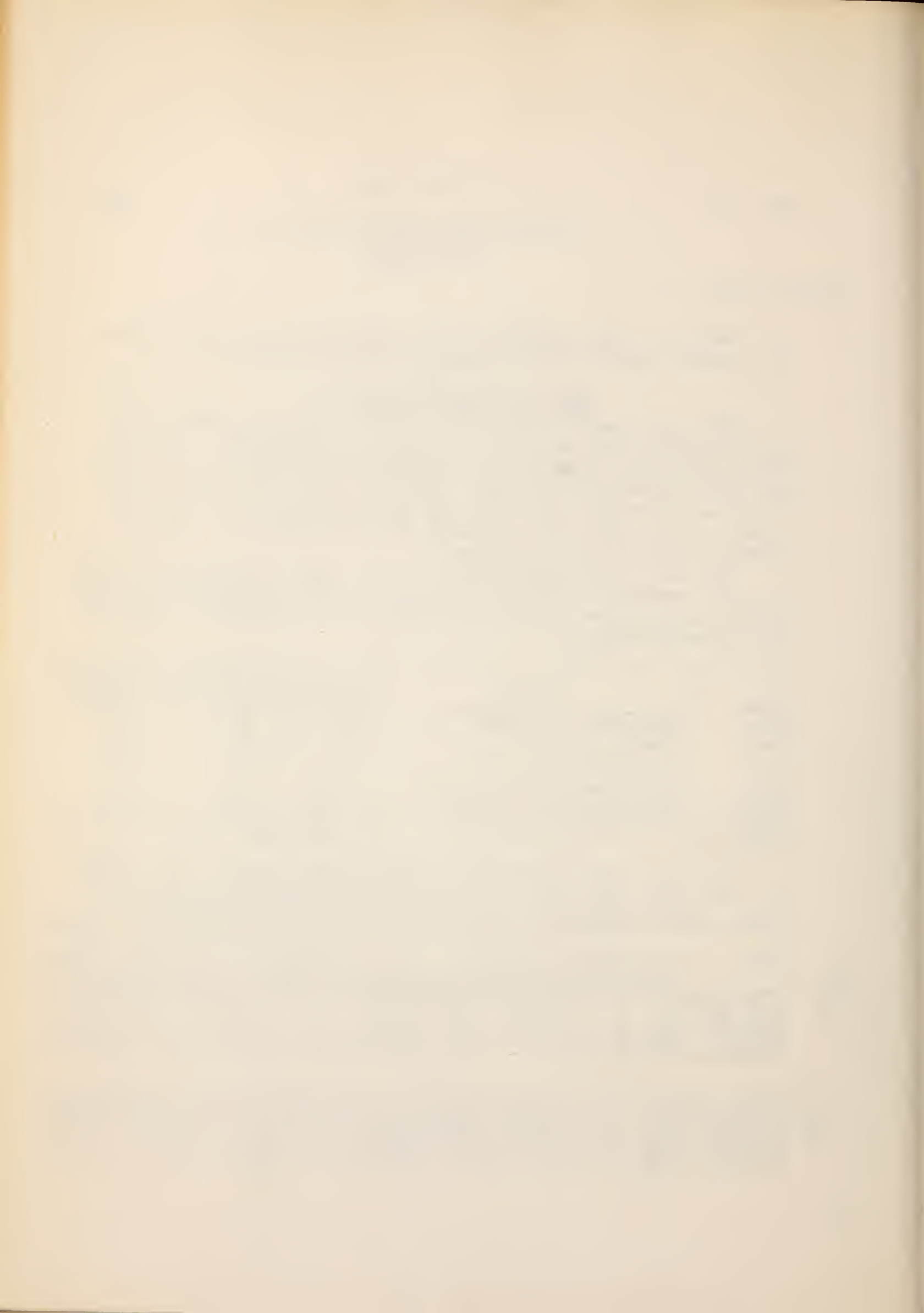
During the past spring, 551 bushels of seed was distributed free from the experiment farm to 103 different farmers. Most of these farmers are located in the vicinity of Newell, but some seed was also distributed to farmers from Vale, Nisland, Arpan, Fruitdale, and Whitewood. No farmer was given seed of more than two kinds of grain, and each recipient will be required to report his results at the close of the season.

The seed of the Swedish Select Oats, barley, and a part of the flax was produced on the irrigated lands of the experiment farm; the other seed was grown on the dry land. Further details are given in the following table:

Grain	Variety	No. of bushels	No. of farmers	No. of bushels per farmer
Wheat	Kubanka C. I. #1440	152	60	2.5
Oats	Swedish Select	168	33	5.0
Oats	Sixty Day C. I. #165	195	39	5.0
Flax	Minnesota #25 (C. I. #12)	24	24	1.0
Barley	Chevalier C. I. #1142	12	5	2.4
Total		551	103	

Four hogs were turned in on plat A III-14, rotation 65, on May 12. Four hogs were turned in on A II-33, rotation 69, on the same date. Results from the two rotations to date are as follows:

Rot.	Dates	No. of days	No. of hogs	Weights		Gain			Lbs. corn fed	Net returns per acre
				Initial	Final	Total	% Daily	per hog		
65	5/13-5/23	10	4	409.0	403.5	-5.5		- .13	82	\$-4.82
	5/29-6/8	10	4	432.5	476.5	44.0	.97	1.10	88	8.80
	Totals	20				38.5				\$ 3.98
69	5/13-5/23	10	4	413.0	413.5	.5	.01	.01	83	\$-3.18
	5/29-6/8	10	4	452.5	479.0	26.5	.60	.66	90	3.82
	Totals	20				27.0				.64



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Field Notes.

Belle Fourche (continued).

Net returns are calculated on the basis of corn at \$1.00 per hundred pounds, and pork at 7 cents per pound. The hogs were taken off the alfalfa on both rotations on May 24 and were ~~pen~~ fed until May 29. Cold, wet weather and the slow growth of the alfalfa were the causes of no gain being made the first period.

Ten sheep were turned on the triangular piece of alfalfa at the south end of A II on May 27. Results to date are as follows:

Dates	No. of days	No. of sheep	Weights		Gains			Net returns per acre.
			Initial	Final	Total	% Daily	per day per sheep	
5/29-6/8	10	10	1419.5	1466.5	47.0	.28	.47	\$3.29

Net returns per acre is calculated on the basis of 7 cents per pound for sheep.

The sorghum and millets were planted during the week, both on the dry and irrigated varieties test.

Alfalfa in the method and time of seeding and pasture grasses in field Q were irrigated.

The small grass plats were harvested according to the following plan outlined for this work:

Small Plats of Pasture Grasses

Field Q

Plan of harvesting, 1916.

This field contains eighteen small plats of separate grasses and grass mixtures.

All the plats are to be irrigated uniformly, about every week or ten days.

Each plat is to be divided into three parts (east end, middle and west end) to be harvested as follows:

West end to be harvested every ten days.

Middle to be harvested every twenty days.

East end to be allowed to mature and harvested for hay.

The twenty day cutting will be made at every second ten day cutting period; that is, all the ten day cuttings will be made on the same day each time, and the twenty day cuttings will be made on the same day as the others every other time.

The general harvesting will be done with a clipper lawn mower, but each time duplicate samples will be taken from 3-foot square areas on each plat. Both the green and the dry weights of these samples will be determined and recorded. These samples will be cut with sheep shears, care being taken not to clip the plants any closer than cows would graze them. When the east ends of the plats are harvested



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Belle Fourche (continued).

similar 3-feet square areas will be sampled in duplicate, and both the green and dry weights determined and recorded.

The same sample areas will be used for each cutting. These areas- two on each plat division- will be located and staked out before the first cutting.

For a comparison, similar tests will be made on a plat of irrigated alfalfa, on which duplicate areas will be located for harvesting respectively at ten-day periods, twenty-day periods, and at maturity for hay.

During the week men were employed in digging a ditch for tile drain and in cleaning up roads.



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FIELD NOTES.

Truckee-Carson.

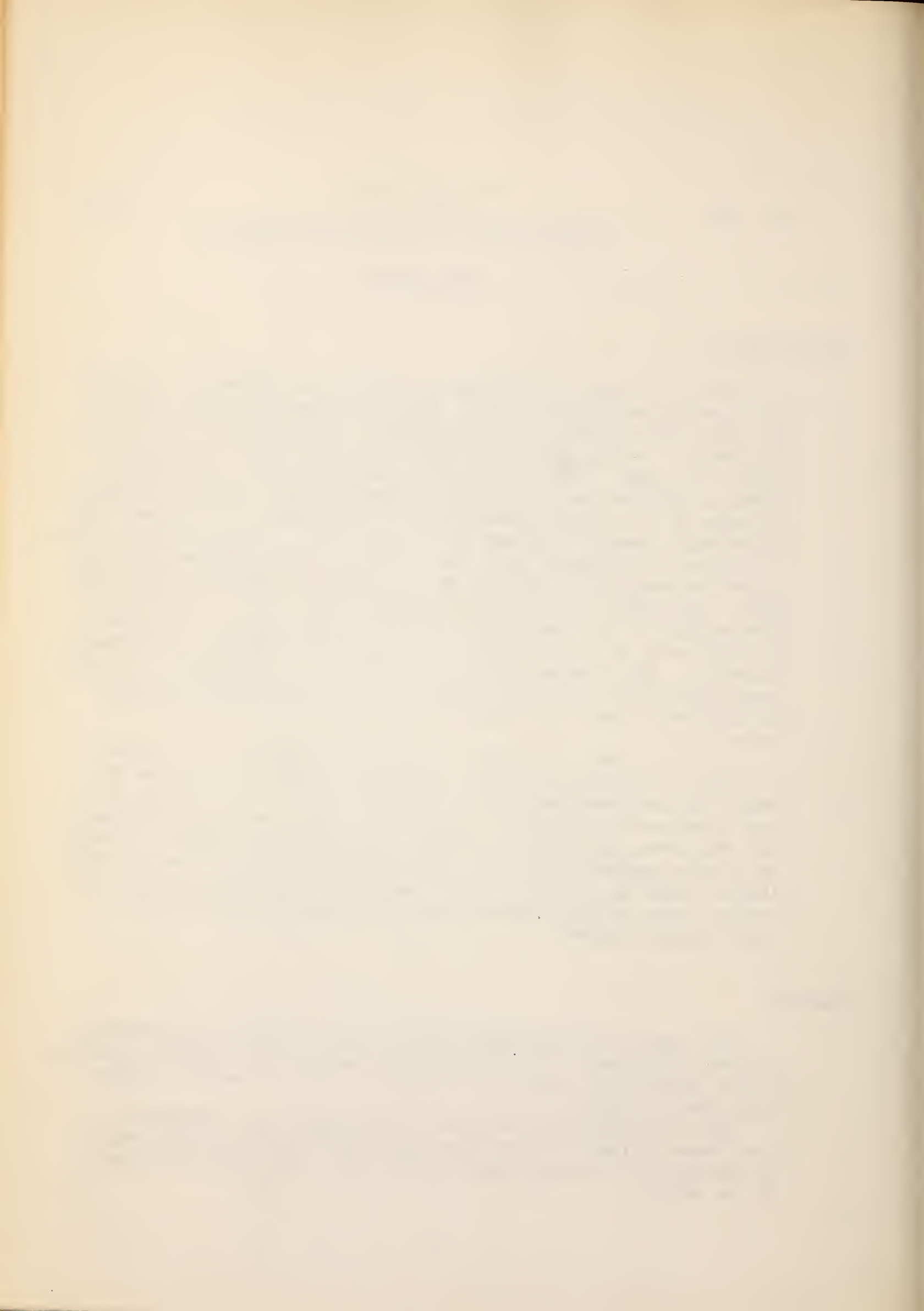
During the week ending June 3, 24 calls for assistance were received and 14 visits were made. During the week a 3-page circular letter was issued on the handling of cases of retained placenta of cattle. A great many calls for assistance have been received along this line. In most cases of abortion and in a great many cases of difficult calving, there is trouble with retained placenta. It seems to be a common practice to let these cases go, hoping that nature will finally take care of the trouble. In a great many cases the dairyman has waited until the cow was in bad condition and then called for assistance, when it was too late to handle the case properly. The after effects of such negligence and lack of proper understanding of such cases has resulted in some loss and considerable annoyance due to temporary or permanent sterility of the animals affected. The circular letter was issued for the purpose of urging prompt attention for these cases and of setting forth the methods of handling in case the farmer himself wished to take care of the cases.

An article was contributed to the local papers on the subject of bloat of cattle and sheep. An unusual amount of loss from this cause has been sustained by the farmers of the Project during the last eight months and more especially since the new crop of alfalfa has been used. The lack of old hay for feeding has caused the rancher to feed immature new crop. This has resulted in a considerable loss of stock from bloat. Bloat has easily caused more loss of cattle and sheep in this locality last fall and this spring than all other causes combined.

Huntley.

The last of the equipment for the cheese factory at Ballantine arrived on Saturday of the week ending May 27, and work of installing it was immediately commenced. The factory will be ready to begin operations on June 1.

One day of the week was spent in Billings in the interest of the cheese factory. Seven farm visits were made during the week, 23 calves were vaccinated against blackleg, and 2 days were spent in the office.



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Field Notes.

Boise.

One small herd of hogs was vaccinated during the week ending June 3, near Meridian, a local veterinarian having found cholera among them. Another call was made near there to inspect hogs suspected of having cholera but no diagnosis was made.

Two meetings were held to discuss the hog cholera situation; one near Starr, off the Project, and the other at Central Cove. Lantern slides were used at both places. Two meetings of pig and lamb clubs were also attended. On Thursday the Agricultural Department of the Boise High School went on an excursion to a number of farms near Boise and Meridian. Types and breeds of different kinds of live stock were studied, the students showing very good interest in the work.

One afternoon was spent with W. E. Meyer, of the Dairy Division, specialist in cow-testing association work. A visit was made to the tester of the association recently organized in Canyon County, Idaho, and Malheur County, Oregon. Interest in the work of the Boise Valley testing association is keen among the members and the association is already attracting much attention out of its membership.

There has been a considerable impetus given to dairying by the opening of a cooperative cheese factory at McDermott, near Meridian, within the past week. The new plant is starting out auspiciously. Another plant will open at Bowmont within a few weeks. Both of these, with the plant at Meridian, belong to the Boise Cooperative Creamery Company. Before the McDermott plant opened, Meridian had been receiving over 18,000 pounds of milk daily, making nearly a ton of cheese.

A prospective dairyman near Bowmont was taken to see two herds of dairy cows near Meridian, which were recently offered for sale. Both herds had been taken off the market.

First crop of alfalfa is being cut this week, a number of fields being already in the shock. The crop will be unusually light on account of the recent freeze and subsequent cool weather.

North Platte.

The treatment for canker sore mouth started several days ago in Mr. Hutchinson's herd, was continued during the week ending May 27. The 115 pigs were treated with iodine on Monday, Wednesday and Saturday. With the exception of 3 pigs, all show a marked improvement and it is probable that it will not be necessary

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Field Notes.

North Platte (continued).

to continue the iodine treatment except in a few of the worst cases. However, the entire bunch will be dipped every 3 days. As a rule it has taken 2 hours to give the iodine treatment to the 115 pigs.

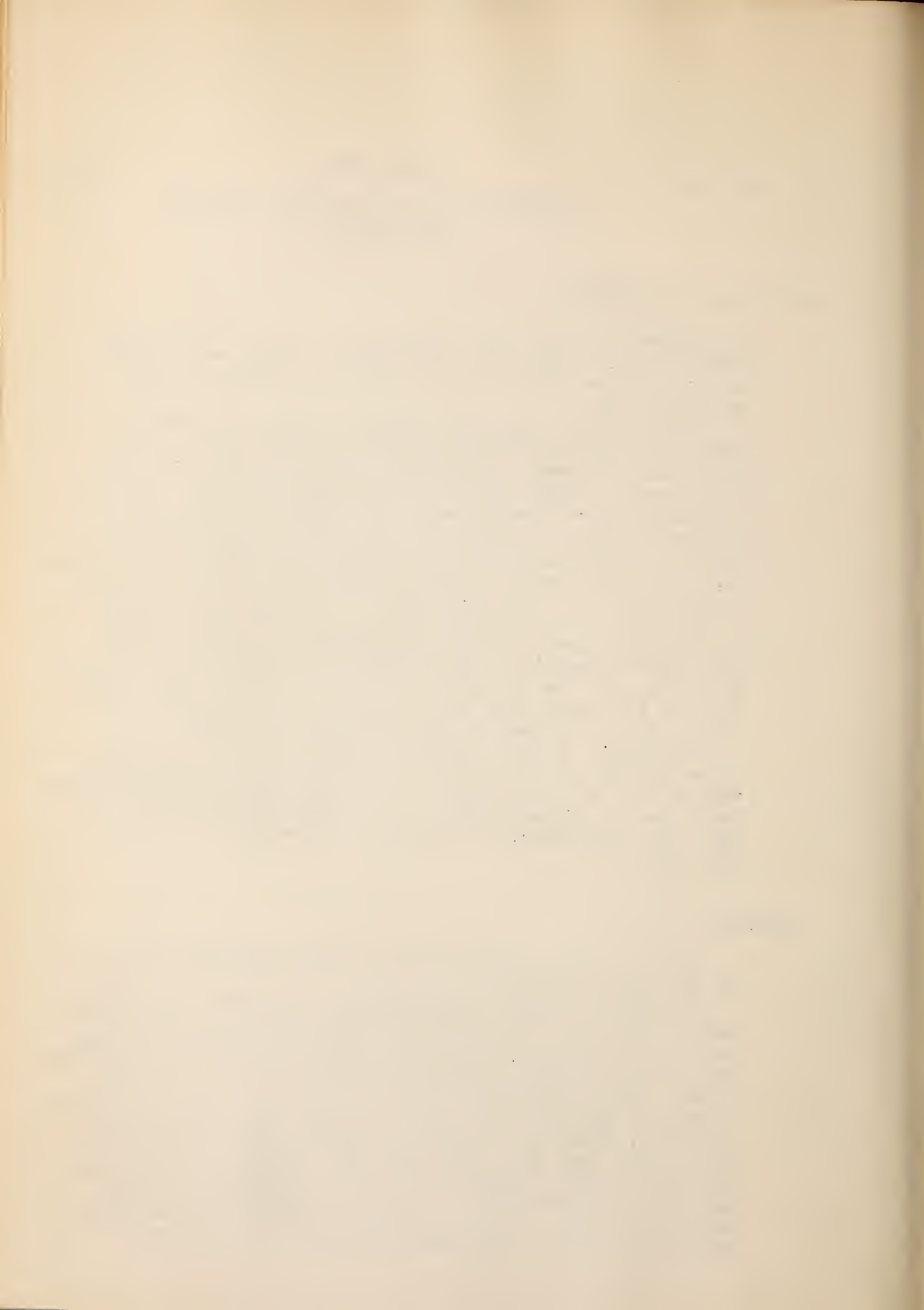
On Thursday of this week a bunch of spring pigs near Bayard were examined that were affected with necrobacillosis in the throat and back part of the mouth as well as in the front part of the mouth. Some were also affected in the lungs. This is the first case we have ever seen where this trouble affected the pigs in the throat. Some time ago the owner of these shoats cleaned out their quarters and scattered air slacked lime quite thick over the floor and turned the pigs in. They at once started to cough and sneeze violently and it is thought that the excess of lime taken in through the mouth and nose caused the throat to become irritated which gave an opening for the sore mouth germ (*necrobacillus*) thus starting the trouble. Over 50% of the spring pig crop had been lost when the visit was made. Death seems to be brought about by suffocation. Only one high temperature (104.5) was found in 8 pigs that were examined.

On Tuesday, 94 fall shoats were weighed on Mr. Asa's farm for a feeding test. The 94 shoats, average weights 118 pounds, were weighed up in 45 minutes on the steel-yard weighing apparatus. One litter of 9 Poland China pigs were also weighed for Mr. Keisel. The pigs were just 2 months old and weighed an average of 48.5 pounds.

Shoshone.

During the week ending May 27, 15 farm visits were made, and 10 calls were received.

Ten head of calves shipped in from the Edgewood Farms, White-water, Wisconsin, by Mr. Hallman became sick about a week after they arrived. All of them did not become sick at the same time, but one after another would become sick and recover in a few days. A calf which Mr. Hallman had raised was in the lot with these calves and was one of the first to become sick. While the calves were sick, their heads were badly swollen around the eyes and back of the jaws, their eyes "mattered" a great deal, they did not eat, and they became very weak. Mr. Hallman wrote the manager of the Edgewood Farms about the trouble, but the answer was received that there had been no such trouble on that farm. As yet the cause of the sickness has not been discovered.



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Field Notes.

Shoshone (continued).

During the week ending June 3, 13 farm visits were made and 13 other conferences were held.

With Mr. Farrell and Mr. Hansen, several of the men who are cooperating in grass pasture tests, were visited. The farmers were found to have done their work well and where the seed was planted early the grass had already appeared. One man who sowed a mixture of sweet clover and timothy in May, 1914, has a pasture now which is practically all timothy with very little sweet clover. He reports that it is pasturing about one cow per acre. Last year the pasture was sweet clover with very little timothy.

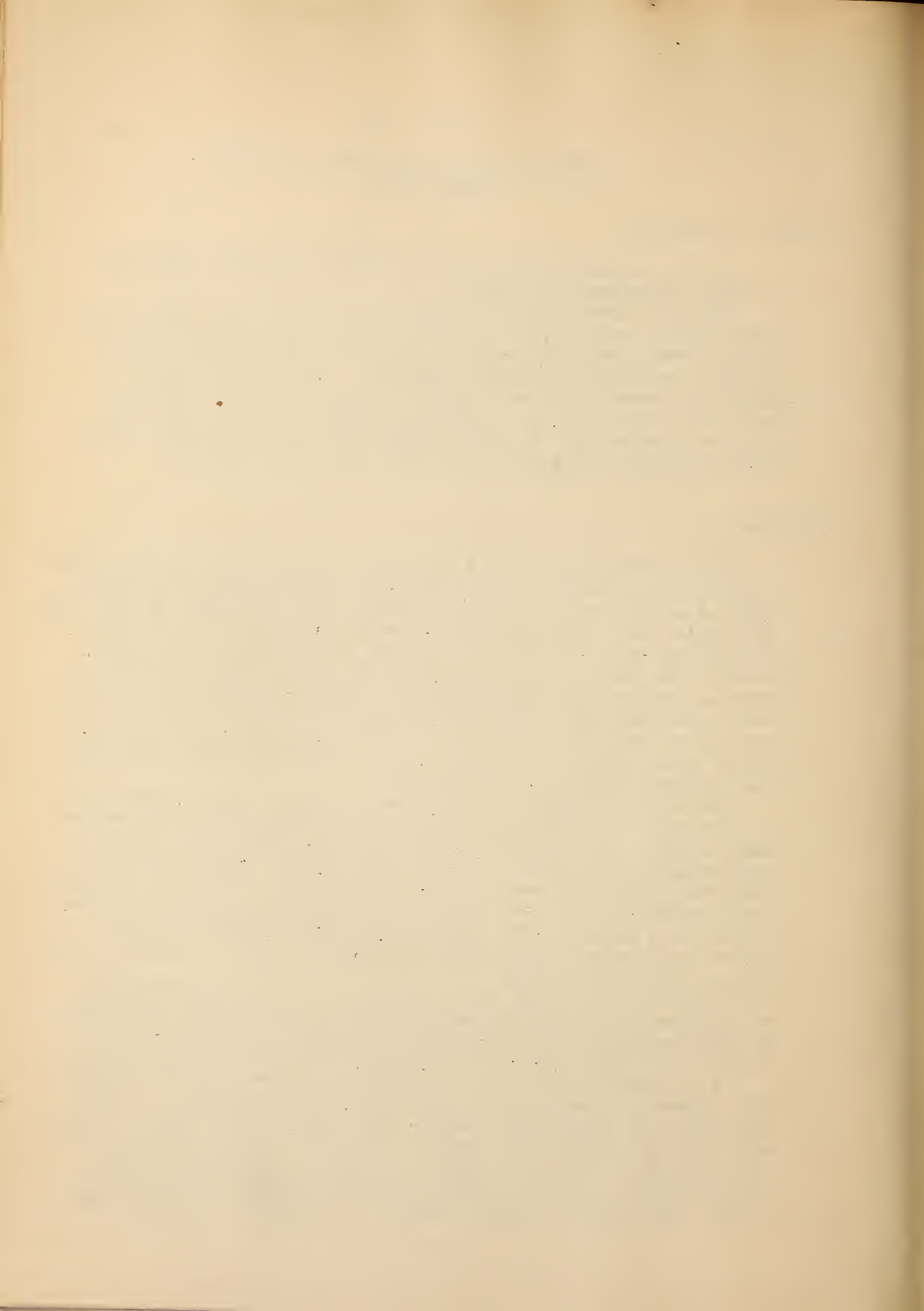
Minidoka.

As the Minidoka Project Stockgrowers' Association had not enough bulls to comply with the State law which requires three pure bred bulls of a beef breed to each one hundred head of females on the range, this matter was adjusted during the week ending May 27. The grass on the open range is still good and all the cattle are doing well. However, the Forest Service has reported that the grass on the Reserve is now good and arrangements were made for rounding up the cattle of the Association and taking them to the Reserve as soon as the weather is favorable. The best route to the Black Pine Division was looked up and mapped out in such a way as to provide the cattle with feed and water during the entire trip.

The first shipment of spring lambs from the farms was made during the week, two carloads being shipped to Ogden and Salt Lake. The lambs weighed from 60 to 80 pounds each and brought $9\frac{1}{2}\phi$ a pound at the loading station with a four per cent shrink. They were grade and cross bred Hampshires, Lincolns, and Cotwolds with the Hampshire blood predominating. The best individual bunch consisted of 74 head cut out of a flock of 115. The 74 head sold averaged 73 pounds. Flocks from several other farms were almost as good. Hogs are now \$7.75. Butter fat is 27 ϕ .

The work of rounding up the cattle of the Project Association was started during the week ending June 3. As the cattle were widely scattered and the weather turned cool again the work was very difficult. On Friday there were approximately 60 head to be secured.

A few weeks ago, Mr. A. H. Wiseman, of Burley, reported trouble with a number of sucking pigs; the case was investigated. It was found that the tongues were swollen to so great a size that the animals could not close their mouths. There were no ulcerations or abrasions. A few of the worst could not squeal. Only two could take any nourishment. In all, 7 pigs in three different litters were affected. The case was watched closely. On Monday, in company with



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Field Notes.

Minidoka (continued).

Dr. Henderson, the farm was again visited. At this time only one of the pigs was found, Mr. Wiseman reporting that four had died and two had recovered. The remaining pig was killed and posted. The trouble was found to be due to a large number of very small parasites embedded in the flesh of the tongue. Some were also found in the lungs and liver. The nature of the parasites is not yet determined.

A meeting of the officers and stockholders of the Creamery Association was held Saturday, when the buildings and equipment of the old association were turned over to the new one. At present, the building will be used as a receiving station, the association receiving one-half cent a pound for all the butter fat that is received.

Huntley.

During the week ending June 3, 8 farm visits were made. Mr. F. D. Farrell and Mr. C. H. Doane, of the Department of Agriculture, spent the week end on the Project.

On June 1, a report of suspected hog cholera was investigated. Post mortem examination revealed the cholera symptoms. Serum was ordered and the entire herd of 65 were vaccinated on the following day. It is impossible to trace the source of infection.

Cattle were vaccinated against blackleg during the week as follows: 13 for Will Bess; 37 for Earl Snow; and 3 for Geo. Cunningham, making a total of 465 vaccinated since January 1, 1916.



WESTERN IRRIGATION AGRICULTURE.
FIELD NOTES.

Truckee-Carson.

During the week ending June 3, the maximum temperature was 81; minimum temperature, 33. For the week ending May 27, the maximum temperature was 73; minimum temperature, 30. Unseasonably cold weather continued until June 1. The last killing frost occurred on the night of May 31.

The following varieties of silage corn were planted May 30 on the Churchill Creamery Farm:

Early Yellow Dent	Silo No. 3.
Giant	Elephant

Stowells Evergreen

All of these varieties were purchased from Northrup, King and Company, of Minneapolis, Minn.

The 5-acre field of pasture grasses which had been planted on the farm of F. E. Mobley was blown out early in May. This was replanted May 24 to the following grass varieties:

	<u>Lbs.</u>		<u>Lbs.</u>
Tall oat grass.....	15	Red Clover.....	3
Smooth brome grass.....	20	White clover.....	3
Orchard grass.....	25	Kentucky blue grass....	20
Perennial rye grass....	15	Timothy.....	15
Meadow fescue.....	10		
<u>Total.....</u>			126 lbs.

One-third of plat D8 was planted to soy beans and the remainder of the plat to sudan grass on June 1.

Plats Y-19 and Y-20 have been divided into 3 plats each, running the full length of the checks, making 6 checks from the two, which will be designated by numbers as follows: Y-19a, Y-19b, Y-19c, Y-20a, Y-20b, Y-20c. All the checks were plowed and leveled and gypsum added as follows:- Y-19a, 8 tons per acre; Y-19b, none; Y-19c, 12 tons per acre; Y-20a, 16 tons per acre; Y-20b, none; Y-20c, 20 tons per acre. One half of the gypsum was applied in each case, plowed in, and the remainder applied and plowed in. All plats will be seeded to alfalfa. The soil in these plats contains a high percentage of sodium carbonate, and it is desired to discover if the beneficial results with gypsum increases with the amount applied.

The pigs in lot I have continued to make satisfactory gains, the daily net return per acre being 80 cents for the past two weeks. The pigs in lot II, on the other hand, have not made satisfactory gains, the profit per day per acre having been only 21 cents during the past three weeks. This is apparently due to the poor growth of



WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Truckee-Carson (continued).

the alfalfa in this field. It has been decided to supplement the pasture by cutting for them each day as much alfalfa from an adjoining plat as they will eat clean.

Results of Pasture Experiment with Alfalfa and Sweet Clover.

	Pigs on alfalfa pasture. Area .25 acre. Period, May 20 to June 3, 14 days.	Pigs on alfalfa pasture; area, .53 acre. May 13 to June 3, 21 days.
Number of pigs.....	10	17
Initial weight, lbs.....	367	632
Final weight, lbs.....	430	725
Total gain, lbs.....	63	93
Daily gain, lbs.....	4.5	4.4
Daily gain, percent.....	1.15	.66
Barley fed, lbs.....	108.0	281.0
Cost of barley @ $1\frac{1}{2}\phi$	\$1.62	\$4.22
Value of gain @ 7ϕ	\$4.41	\$6.51
Net return.....	\$2.79	\$2.29
Net return per acre.....	\$11.16	\$4.32
Daily net return per acre	\$.80	\$.21

During the week ending June 10, the maximum temperature was 91; minimum temperature, 40.

Seeds of the following varieties of forage crops were received from A. Macpherson, Field Instructor of New Zealand. They were planted in small plats in H-2.

Giant Italian Rye
Perennialized Rye

Silver Beet
Western Wolths Grass.

The following fields on the farm were irrigated: C1 to 5; D1 to 8; E1 to 8; F1 to 8; G1 to 5; H2 to 29; Y1 to 20.

The potatoes in H1 and the trees in C6 were cultivated and hoed.

The sweet clover in D1 and alfalfa on F1 were harvested to provide hay for the horses until the main crop is harvested.

Scottsbluff.

Under date of June 13, Mr. Knorr wrote to Mr. Scofield, as follows:

"Yesterday, June 12th, a terrific hail storm hit this section

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Field Notes.

Scottsbluff (continued).

of the Project, doing considerable damage over an extensive area. The loss sustained on the Farm was considerably more than we had at first anticipated. The alfalfa is practically destroyed for the first cutting; as soon as the weather clears up and the water recedes we will have to cut this in order to get the dead material off the field and have a clear second cutting. Much of the new seeding of the alfalfa has been swamped under and much of it is beyond recovery. The spring wheat and the barley, which was beginning to joint and some of the barley heading out, have been completely cut off and are flat on the ground, and it appears that the hail did more damage than the hail storm did last fall. The corn, of which there was a good stand, is completely gone, but we hope that it will start up new from the roots. Some of the sugar beets have been damaged beyond recovery. On some of the fields, however, the water was standing so deep that the hail did not have any effect on the young plants. Our new seeding of grasses is practically destroyed by being swamped under and we cannot see how these can recover sufficiently to pull through so as to make a good stand. The hog pastures look as bare as in the dead of winter. The trees and the hedge have been almost stripped of their foliage. In the draw between the buildings and the front gate the hail stones were washed in to more than a foot in depth. A large proportion of our oat and barley varieties are today, after the hail storm, covered with about eight inches of hail stones, where these have been drifted and accumulated at that point. The washing in the fields has done a great deal of damage and will cause considerable trouble when irrigation begins again.

Huntley.

During the week ending June 10, the maximum temperature was 84; minimum temperature, 36; precipitation, .01 inch. Weather has been warm and dry during the week, and all crops are making good growth, excepting winter wheat on the dry land, which is burning badly.

Old alfalfa was given the second irrigation.

Thinning of sugar beets was begun. The stand of beets in all the fields is unusually good. Local seed was used in all cases and the seeding rate was 15 pounds per acre, while formerly with imported seed the seeding rate was 18 pounds per acre, indicating that the local seed has a higher germination.

The growth of the grasses on the three one-quarter acre plats in field A-II appears to be much improved over former years and is

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

furnishing excellent pastures for the two cows. The growth is especially good on the half of the plats that were top dressed with manure each year at the rate of 10 tons per acre during the past two years. The cows are given no other feed and are left on the pasture only during the day time. One of the cows freshened on May 25. The other cow is dry and is due to freshen about August 1.

Irrigated Rotations.

Sugar beets were cultivated and thinned. Second and third year alfalfa plats were irrigated for the second time.

The gains made by each of the fall pigs on alfalfa pasture are shown in Table I.

Table I. Fall pigs - Alfalfa pasture and 2% corn- Rotation 67.

No. of hogs	No. of days	Initial weight	Final weight	% daily gain	Av. daily gain
51	10	143	152	.63	.9
52	10	132	143	.79	1.1
53	10	132	144	.85	1.2
54	10	139	153	.94	1.4
55	10	133	145	.85	1.2
Total.....		679	737	4.06	5.8
Average.....		136	147	.81	1.1

Daily return per acre.....\$1.08

Lbs. gain per lb. grain..... 2.34

The gains made by the ewes and lambs in field B-V are shown in Table II.

Table II. Five ewes and five lambs- One-half acre pasture grass mixture.

Ewes.				
No. of sheep	No. of days	Initial weight	Final weight	Loss Lbs.
66	10	131	129	2
68	10	150	148	2
70	10	125	121	4
72	10	169	162	7
74	10	123	118	5
Total		698	678	20
Average		140	136	4

WESTERN IRRIGATION AGRICULTURE.
Field Notes.

Huntley (continued).

Table II (continued).

Lambs.				
No. of sheep	No. of days	Initial weight	Final weight	Gain Lbs.
67	10	84	84	0
69	10	83	85	2
71	10	87	88	1
73	10	104	104	0
75	10	81	82	1
Total		439	443	4
Average		88	89	1

Yuma.

During the week ending May 27, the maximum temperature was 96; minimum temperature, 42; greatest daily range, 43. Thirty-two acres were irrigated during the week.

A great deal of cultivation was done including nearly all row crops in fields, gardens, nurseries and the deciduous and fig orchards.

Castor oil beans on B-21 were thinned forming a spacing in row of 12 and 24 inches. Also, the variety block of cotton on D-16 was thinned at spaces of 8 and 14 inches.

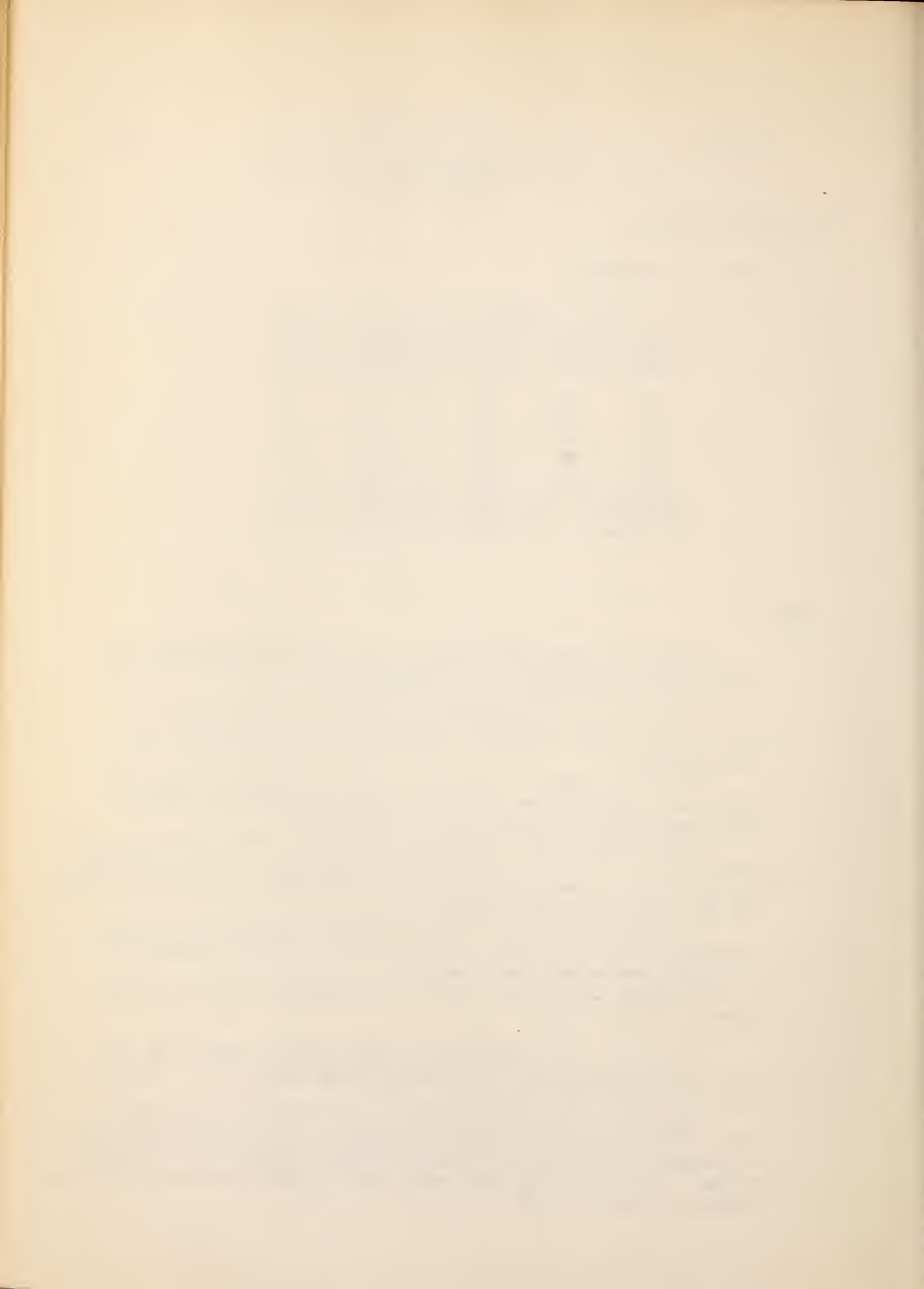
Sweet potatoes were replanted on A-10-7. The following lands were disked: C-1 to 5, D-1 to 5, 8 and 9; E-1, 3 and 4. Fields D-6 and 7 were plowed. Pasture grass varieties on D-15 were clipped for the first time this season.

A temporary four-wire fence on red wood posts was constructed around fields A-1 to 8, to provide for a steer pasturing test on alfalfa and sudan grass pasture.

Mr. Blair left on the 27th for Los Angeles, Chula Vista and Imperial Valley points.

During the week ending June 3, the maximum temperature was 97; minimum temperature, 41; greatest daily range, 48. Twenty-two acres were irrigated.

Field peas were plowed under on border A-25, between date rows. Some leveling was done on field C-1 to 5. A late planting of Durango cotton was made on A-24. Flax plats on C-26 were harvested. Alfalfa hay was harvested from one-half the area of the pasturing test on A-1 to 8.



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Field Notes.

Yuma (continued).

The small trees planted during the past spring to positions in the deciduous orchard were mulched near the base with corral manure. It is thought this will tend to hold the moisture supply more uniform for the small trees until well established. Eucalyptus brush was hauled from roads about the farm.

A brush shade was built and water piped to pasture A-1 to 8.

During the week ending June 10, the maximum temperature was 106; minimum temperature, 49; greatest daily range, 48. Twenty-seven acres were irrigated.

Alfalfa variety blocks on C-23 were harvested. Also, potatoes were harvested from border D-14. Potato yields are generally light, likely occasioned by late planting as considerable delay was encountered in securing seed.

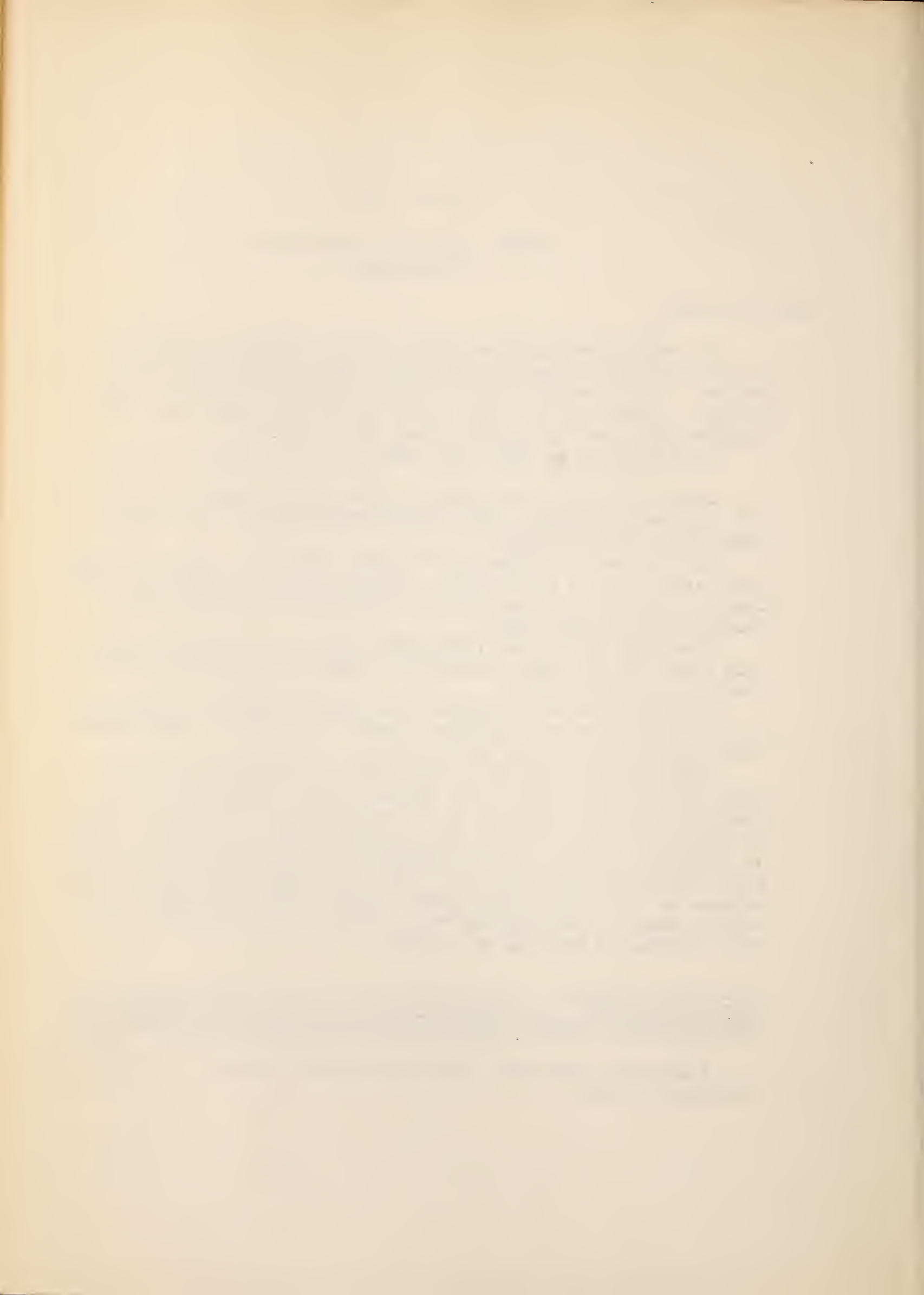
Threshing of flax and field pea varieties for seed was begun this week. It was again necessary to prune root sprouts from fig trees in orchard C8 to 17.

Several varieties of millet were seeded on D-12. Durango cotton plantings on D-24 to 26 were thinned. C-25 and 26 were plowed. Leveling was continued on C-29 to 36.

Eight Hereford steers of good quality have been secured for pasturing alfalfa on A-1 to 8. Seven of these animals are long yearlings and one a two-year old. It was thought necessary to substitute the two-year old for the eighth yearling which was injured in shipping. As no suitable Herefords could be secured on the Project, the stock being used is just off the range from Arizona. These animals are in considerably better condition than most range stock at this season. These steers were turned on pasture June 8. Initial weights are recorded as follows:

Description number	1	2	3	4	5	6	7	8	Tot.	Av.
Initial weight, Pounds..	662	628	800	588	566	606	564	470	4884	610.5

Nearly all young beef stock found on the Project is of Holstein-Shorthorn mixture.



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FIELD NOTES.

Huntley.

During the week ending June 10, 11 farm visits were made. On Saturday, a sale of grade Holstein cattle was attended at Ballantine, where 6 cows were selected for Mr. Murphy. This lot of 58 two and three-year-old heifers was imported by the Ballantine State Bank from near Wichita, Kansas. They were sold entirely to Project farmers at an average price of \$82.50 per head. The largest amount paid for any heifer was \$120.00.

The cheese factory at Ballantine started on Wednesday with a milk supply of 945 pounds on the first day, which on Saturday had increased to 1545 pounds.

Minidoka.

Although 14 head of the cattle of the Project Association were missing, the herd was taken to the reserve during the week ending June 10. The strays are not lost but are on the Raft River range, where a round-up of all the cattle that go to the Forest Reserve will be held about June 15, at which time those belonging to the Association will be secured and sent to the Black Pine Division with the rest of the herd.

As there will be no free serum for the hog cholera control work after June 30, plans are being formulated to carry on the work alone. Whether or not the station remains in Idaho and if so just how much assistance can be secured from the Bureau of Animal Industry Inspectors is not yet known. However, the old local organizations will be held in force, the leaders, survey men, and others pledging even greater support than ever providing some assistance is given them.

Some difficulty is being experienced with the Paul Cooperative Cheese Factory. The main trouble seems to be that the farmers and business men are having trouble in trying to work together. The present plans are to go ahead, starting the building next week. The most serious thing now is that the directors have decided upon a too elaborate and expensive building which will cause them to start with a debt of approximately \$2000. This caused so much dissension that the work has been retarded. Had this trouble not arisen the factory would have been in operation by now. As it is, the building is not yet started.

Boise.

A report of sickness among hogs on a ranch near Bowmont was

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Field Notes.

Boise (continued).

received on Saturday, of the week ending June 10, but a representative of the State Veterinary Department had already visited the place. It is understood that the trouble appeared to be cholera. All previous cases are apparently cleaned up and conditions look quite favorable.

Considerable time has been spent on pig club work this week, following the organization work done earlier by others. The prospects for profitable work by the members of clubs visited is not especially bright though there are a few members who are very much interested in the work.

Uncompahgre.

During the week ending June 10, 16 farm visits were made, and 3 calls for services were received.

One call came in for assistance in spraying hogs for lice. This assistance was given.

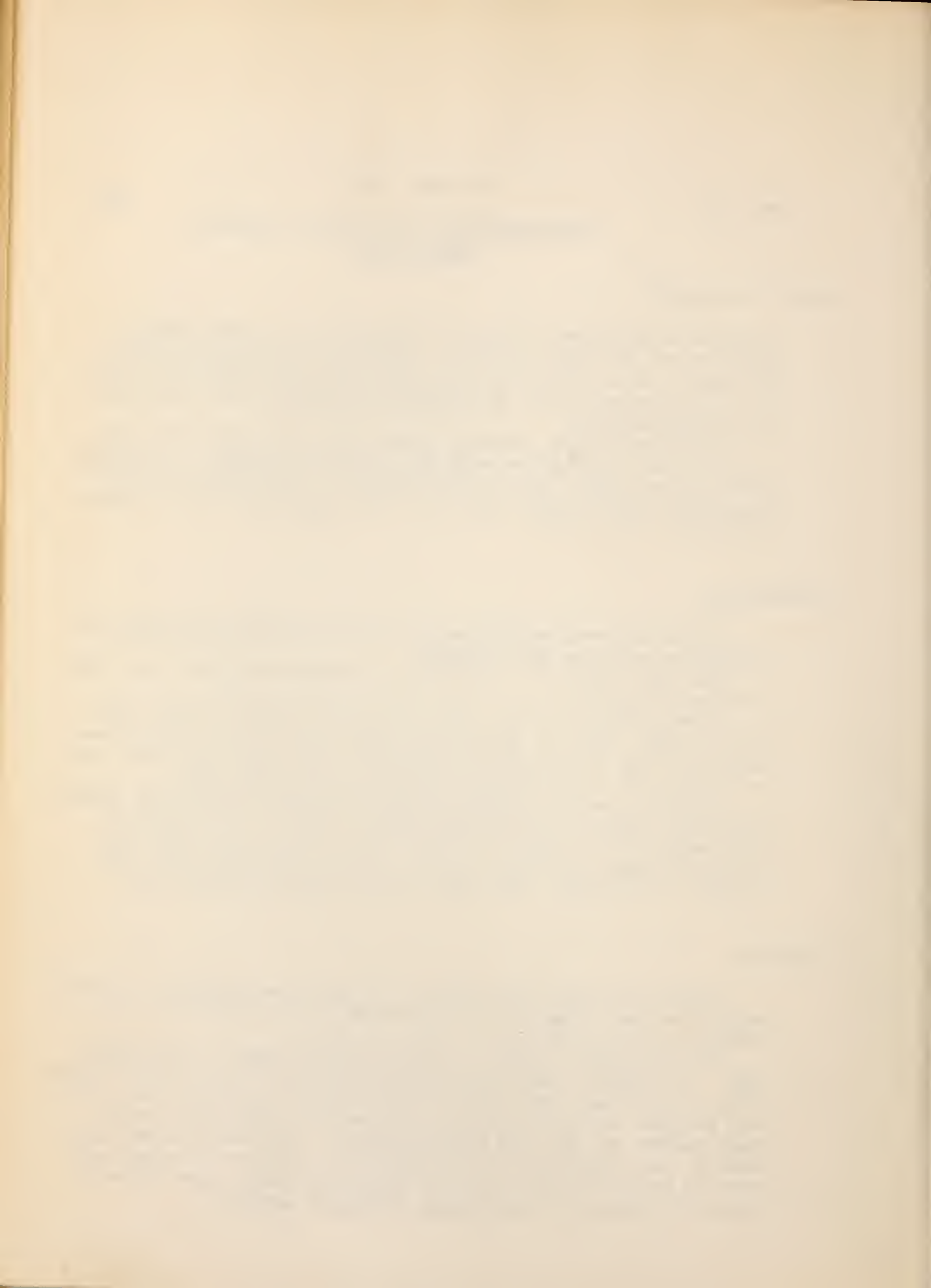
Seven carloads of hogs left the Project shipping points during the week. Three of these were shipped by the local Grange Association; they brought \$8.65 at Denver. The other 4 cars were sent out from Olathe by farmers who cooperated in the shipment.

Owing to the slow growth the alfalfa has made during the spring, the alfalfa pasture for the hogs has been short. Some blight is being reported in alfalfa and the farmers are cutting their first cutting although it is very short. Some of the fields show the effects of the frosts. The fruit crop is nearly a total loss.

Shoshone.

During the week ending June 10, 12 farms were visited, 13 other conferences were held, 8 cows were tested in two herds, and 1 hog feeding test was completed.

The sentiment in favor of grass pastures seems to be growing fast. If pastures which are sown this year for a test are satisfactory, it is likely that a large acreage will be sown next year. Not only dairymen are interested, but some men are talking of it for sheep pasture and for beef cattle pasture. A few men who are interested in beef cattle are of the opinion that they would rather pasture the cattle at home than send them to the range where there is danger of loss and of contracting contagious abortion.



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Field Notes.

Tieton.

During the week ending May 27, 30 farms were visited; 5 calls for assistance were received and answered by farm visits; milk was tested on 10 farms; records were discussed on 2 farm visits. Nine men were found who were interested in silo building. Three calls were received in regard to vaccination against blackleg, 9 animals were vaccinated, and 1 demonstration was given in the preparation and administration of the vaccine. Two farm surveys were made, 2 pig feeding demonstrations were started, and 1 day was spent with 5 pig club boys.

The weather remains cool and crops are growing slowly. Very little alfalfa hay is cut and most of what is cut was needed to feed horses or is fed green to cows. Produce and livestock prices remain as they were last week.

Truckee-Carson.

During the week ending June 10, 32 calls for assistance were received, and 16 farm visits were made.

Considerable time was spent in connection with marketing hogs. During the past two weeks three carloads have been marketed. The largest number of hogs in each car belonged to one party. The remaining space in each car was taken up by one or more farmers with small lots of hogs. All of these shipments were made to the Western Meat Company, at San Francisco. The shippers complain of very large shrinkage. This is probably due to a large extent to the method of feeding at this time of year in this locality. Most of the hogs being raised here now are raised in connection with dairying and not much grain is fed. Green alfalfa or alfalfa hay supplemented with milk and perhaps a little grain constitutes the hog ration. Practically no hogs are put in prime condition before shipping. This accounts for the heavy shrinkage. The time required to reach San Francisco averages 28 hours. The freight rate is \$68 per car. On account of the lack of extra finish in locally grown hogs, it has not been possible to receive the highest quotations.

A trip was made to Reno on the evening of June 2 to interest the Nevada Packing Company of Reno in sending buyers at regular intervals into this locality for the purpose of buying hogs. The representative of the company seemed favorably disposed toward the plan. Objection, however, was made to buying hogs from this locality because of the lack of proper finish that exists generally in hogs offered for sale in dairy sections. The reluctance which the above company has shown up to this time in purchasing hogs from this locality has resulted in the shipment of practically all hogs to the San Francisco market.



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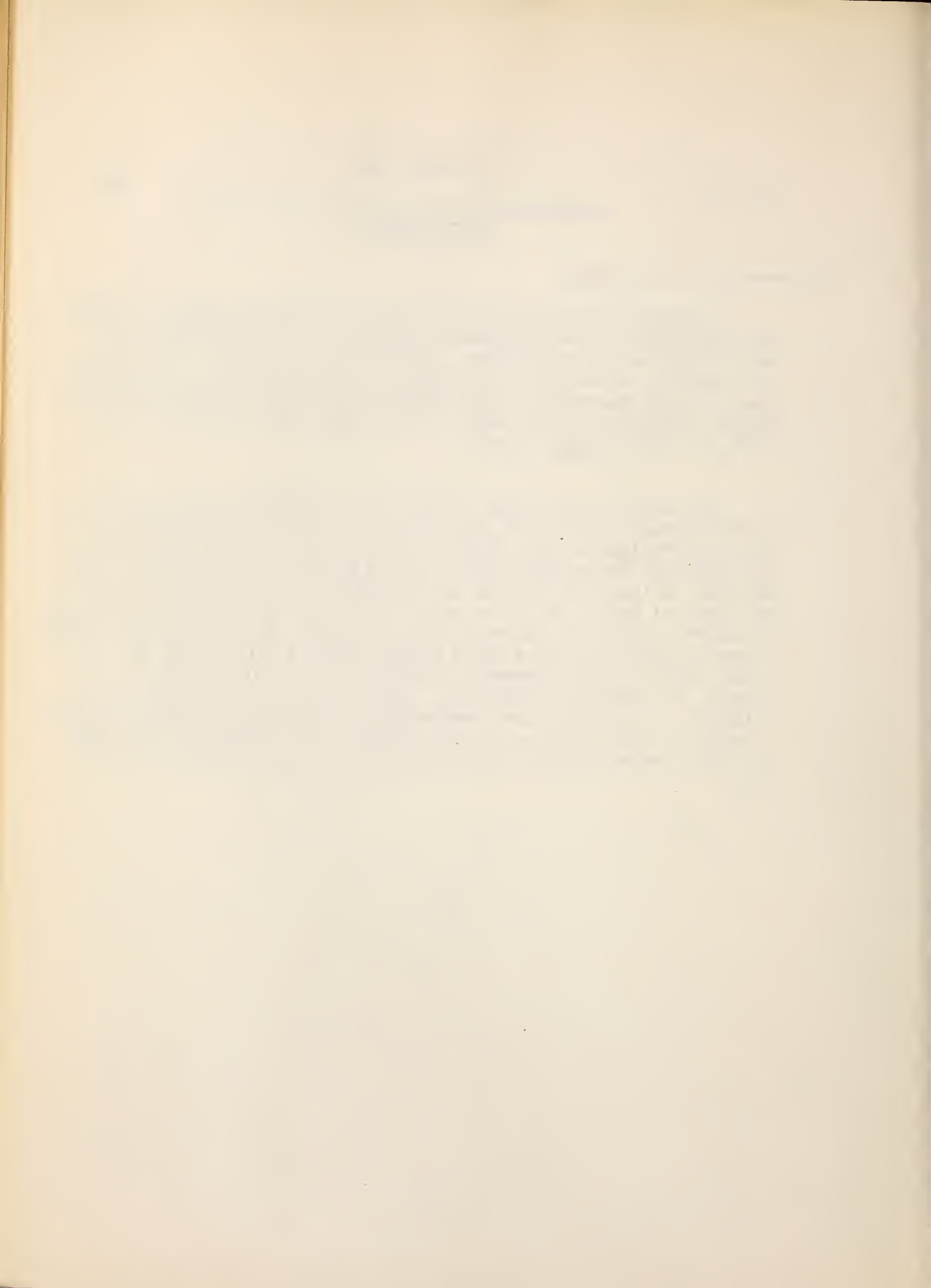
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DEMONSTRATIONS ON RECLAMATION PROJECTS.
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Truckee-Carson (continued).

An effort is now being made to get a sufficient number of farmers interested in the cooperative marketing of another carload or two of hogs in the near future. The principal difficulty is that the hogs are in such a varied stage of finish. However, it is hoped that at least one carload may be gotten together in a week or so. The prices prevailing on the coast at the present time are $7\frac{1}{2}$ to $8\text{--}3/4$ cents for well finished hogs.

The report of the local creamery for the month of May shows 33,697 pounds of butter fat purchased, or an increase of 6,048 pounds over the previous month. The total amount expended for butter fat was \$8442.62. The average price for the month was 25.05 cents. The gathering of the cream for the local creamery by contract for one cent per pound of butter fat to be paid by the farmers has proved very satisfactory. About two-thirds of the patrons of the creamery have signed a year's contract to have their cream delivered every other day. All cream thus delivered commands a premium of one cent per pound over highest San Francisco quotations. This extra one cent pays for the delivery. It is hoped that this method of delivery will be universally adopted by all patrons of the creamery. The quality of the cream has been very materially improved, due to the new system of collecting.



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